



SPIEGEL
RESEARCH
CENTER

How Online Reviews Influence Sales

\ Evidence of the Power of Online Reviews to Shape Customer Behavior



Data-Driven Insights on How Retailers Can Maximize the Value of
Their Engagement With Consumers Through Online Reviews

\ Executive Summary

Insights into How Online Reviews Affect Purchase Decisions

With nearly 95% of shoppers reading online reviews before making a purchase, reviews have transformed the way consumers make purchase decisions.* But reviews are more than just a way for shoppers to gather information. Reviews are a powerful form of consumer engagement.

Northwestern University's Spiegel Research Center has been at the forefront of answering questions about how consumers engage with brands and how that engagement shapes customer value since 2011.

As part of Spiegel's ongoing, multi-faceted exploration of consumer engagement, we have spearheaded research into the financial impact of consumer engagement via online reviews.

In this research, we set out to answer two main questions:

- Do online reviews affect sales?
- If so, in what ways, by how much, and under what circumstances?

We have found that online reviews have a significant and quantifiable impact on purchase decisions – but the degree of that impact depends on a number of factors, such as star ratings, the nature of the review content, the number of reviews, the price of the item, and the source of the review. These findings have powerful implications for retailers and their suppliers as they think about how to collect, manage, and promote online reviews of their products and services.

In this report, we examine Spiegel's groundbreaking research and provide recommendations for how retailers can use online reviews to drive increased customer value.

*PowerReviews Internal Data

QUESTIONS WE ADDRESS

- What is the upside impact of online reviews on sales? What's the downside impact?
- Are higher ratings always better predictors of increases in sales?
- Does familiarity with the product category alter the influence of reviews?
- Is there an optimal number of reviews? If so, how many?
- Should brands prompt purchasers to submit reviews?
- Do reviews from verified buyers have greater impact on sales than those from anonymous sources?

\ Executive Summary

About the Research

The Spiegel research team partnered with PowerReviews to analyze millions of customer experiences from two online retailers featuring primarily lower-priced product categories and a third online retailer of high-priced gifts. We looked at how customers' exposure to and interaction with online reviews affected their purchase behavior for up to a year.

- **Lower-priced consumer products:** Spiegel analyzed ratings and reviews data in the consumer packaged goods industry from two online retailers; the research covered 22 product categories with a total of 111,460 SKUs.
- **High-end gift retailer:** Spiegel analyzed approximately 15.5 million page views for 1,800 unique products from 7.8 million users over the course of one year, tracking the number of page views and sales as each product accumulated reviews.
- **Prompted vs. unprompted reviews:** Spiegel analyzed 57,000 reviews from anonymous consumers and 65,000 reviews from verified buyers for about 13,500 unique products in a number of categories, including health and beauty, electronics, and home and garden.

ABOUT POWER REVIEWS

PowerReviews works with global brands and retailers to collect and display customer ratings. PowerReviews partners with more than 1,000 global brands and retailers to increase conversion and improve products and the customer experience with ratings and reviews and Q&A software.



\ Executive Summary

What we found:

This research found that not only are reviews extremely valuable in influencing purchase decisions, but a number of circumstances factor into when and how reviews shape customer value.

How star ratings, number of reviews, and price influence purchase behavior



Online Reviews Matter — *A Lot* ...



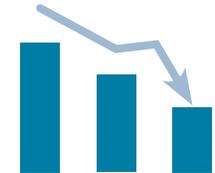
... Especially for More Expensive



... and “Riskier” Items



Perfect Ratings Raise Questions



More is Not Always Better

How the source of the reviewer matters



Verified Buyers Give Higher Ratings



Anonymous Reviews Are Shaped by Selection Bias



Verified Buyers Are Perceived as More Credible

\ Impact on Conversion Behavior

How Ratings, Number of Reviews, and Price Influence Purchase and Conversion Behavior

Spiegel's analysis of ratings and review data from multiple e-commerce sites found that online reviews have the power to dramatically influence purchase decisions. But the degree of this influence depends on many factors, including:

- Price of the product
- Degree of uncertainty or risk involved in the purchase
- Average star rating
- Presence of negative reviews
- Number of reviews

WHAT WE FOUND:

- 1. Displaying reviews can increase conversion by 270%**
- 2. Reviews impact sales more for higher-priced items ...**
- 3. ... and for higher-consideration items**
- 4. 5 stars is “too good to be true”**
- 5. Initial reviews have the greatest impact**

\ Variable: Presence of Reviews

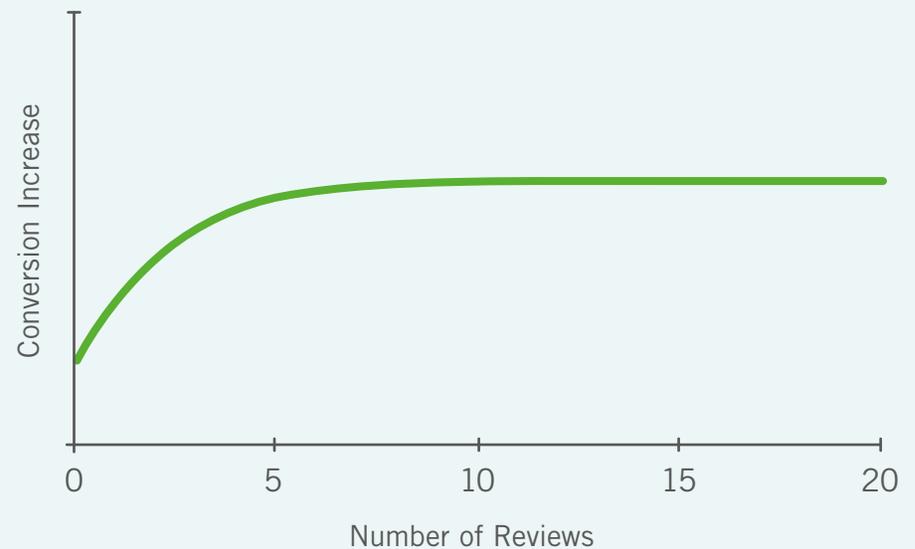
1. Displaying Reviews Can Increase Conversion by 270%

It may seem intuitive that the availability of reviews will make a consumer more likely to purchase a product. But the magnitude of that impact may surprise many people.

Based on data from the high-end gift retailer, we found that as products begin displaying reviews, conversion rates escalate rapidly. The purchase likelihood for a product with five reviews is 270% greater than the purchase likelihood of a product with no reviews.

Askalidis, Y., and Malthouse, E. C. (2016). "The Value of Online Customer Reviews." RecSys 2016 - Proceedings of the 10th ACM Conference on Recommender Systems, 155-158. Association for Computing Machinery, Inc.

THE FINANCIAL IMPACT OF DISPLAYING REVIEWS



Our research found that as products begin displaying reviews, conversion rates escalate. Having five reviews causes purchase likelihood to increase by a factor of nearly 4x.

\ Variables: Presence of Reviews and Price

2. Reviews Have a Greater Conversion Impact for Higher-Priced Products

To better understand the conversion impact of reviews in various circumstances, we looked at the impact of displaying reviews on higher-priced versus lower-priced products. We found that reviews had a greater impact on purchase likelihood for higher-priced items than cheaper ones.

The data from the high-end gift retailer showed that this was true when comparing high-priced vs. low-priced categories. And the research from the lower-priced consumer products retailer showed that this was also true when looking at high-priced vs. low-priced options within categories (e.g., regular cereal vs. organic cereal).

When the price is higher, there is more risk involved in the consumer's decision. Having more information via reviews helps mitigate that risk.

Askalidis, Y. and Malthouse, E.C.. "The Value of Online Customer Reviews." RecSys '16 Proceedings of the 10th ACM Conference on Recommender Systems, 2016.

Malthouse, E.C., Maslowska, E., and Viswanathan, V. "Do Customer Reviews Drive Purchase Decisions? The Moderating Roles of Review Exposure and Price." Decision Support Systems, 2017.

HIGHER-PRICED PRODUCTS, HIGHER CONVERSION IMPACT

CONVERSION INCREASE FROM THE INCLUSION OF REVIEWS



Based on data from the gift retailer, when reviews were displayed for a lower-priced product, the conversion rate increased **190%**. However, for a higher-priced product, the conversion rate increased **380%**.

\ Variables: Ratings, Price, and Risk

3. Reviews Have a Greater Conversion Impact For Higher-Consideration Items

Our research showed that reviews have a greater impact on purchase likelihood for high-consideration products than for low-consideration products.

Price is one of the primary factors that determines how “risky” a purchase is, but it is not the only factor. Other factors that might cause a consumer to spend more energy evaluating a purchase decision—and hence rely more heavily on reviews—include:

- How much the product affects health and safety
- How much the product reflects the consumer’s personal identity
- Whether the product is a recurring or habitual purchase for the consumer
- Whether it is a recently introduced product or brand

THE ENHANCED ROLE OF REVIEWS FOR HIGHER-CONSIDERATION PRODUCTS:

● Cheap Slope ● Expensive Slope



Star ratings have a stronger influence on purchase likelihood for expensive items than cheaper items in the same category. For both baby food and weight loss products, the slope of the purchase likelihood line was significantly steeper for expensive options than for cheaper options.

\ Variables: Average Star Ratings

4. Five Stars is “Too Good to be True”

More stars equals more sales, right? It seems fairly intuitive that higher ratings would lead to higher sales. Our research found that this is true—but only up to a point.

Across product categories, we found that purchase likelihood typically peaks at ratings in the 4.0 - 4.7 range, and then begins to decrease as ratings approach 5.0. Put differently, products with an average star rating in the 4.7 - 5.0 range are less likely to be purchased than those in the 4.2 - 4.7 range.

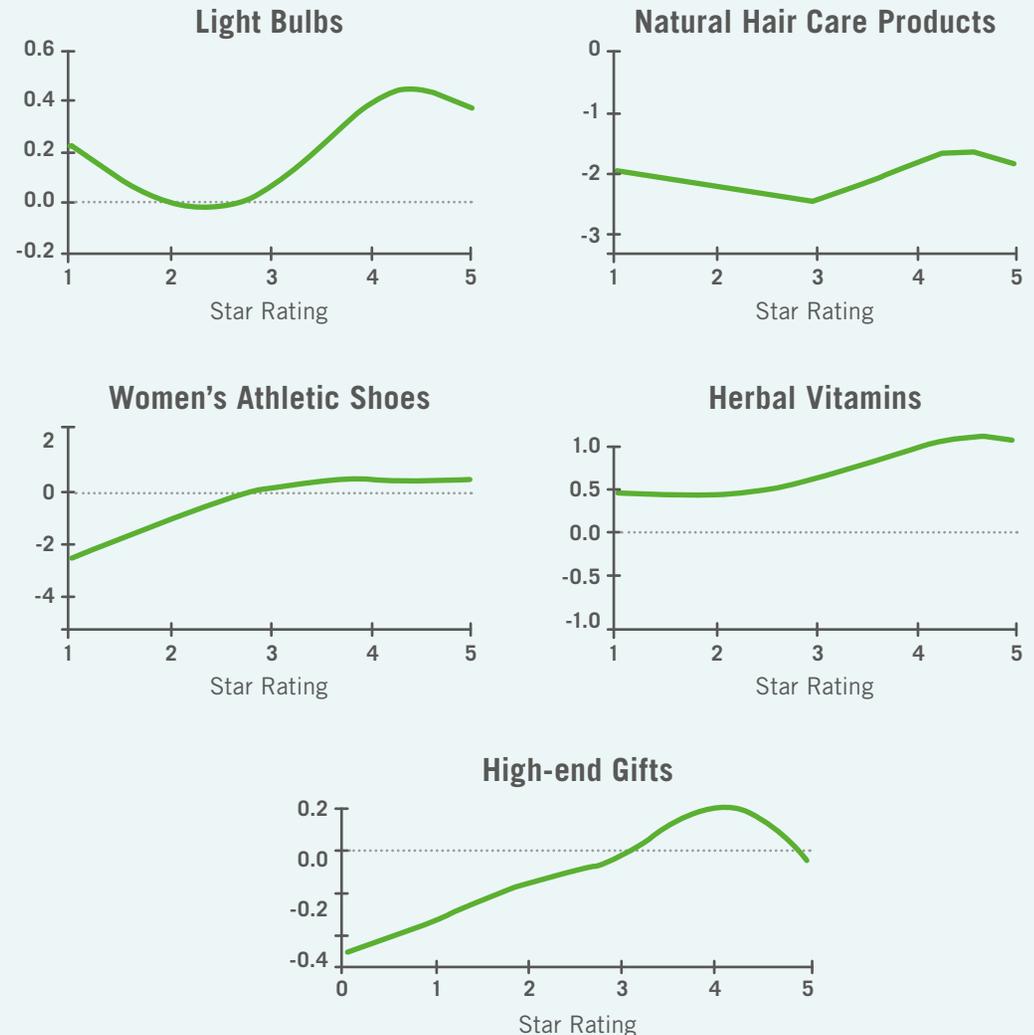
This suggests that shoppers see ratings at the far end of the spectrum as “too good to be true.”

Maslowska, E., Malthouse, E.C., and Bernritter, S. (2017), “Too Good to be True: The Role of Online Reviews’ Features in Probability to Buy.” *International Journal of Advertising*, 36(1) 142-163.

FINDING THE SWEET SPOT

The optimal star rating varied across product categories. But what is most interesting to note is that in no category was the optimal rating 5.0.

Star Ratings’ Impact on Purchase Probability



\ Variable: Presence of Negative Reviews

Negative Reviews Establish Credibility

Previous PowerReviews research found that 82% of shoppers specifically seek out negative reviews. This is consistent with our theory that near-perfect ratings undermine the credibility of the review.¹ Readers are skeptical of reviews that are too positive and, in many cases, a negative online review is seen as more credible.

Additional research by social commerce specialist Revoo indicates that consumers spend four times as long on a site when they interact with negative reviews, with a 67% increase in conversion rate.²

WHY NEGATIVE REVIEWS MATTER:

- **Shoppers are skeptical of overly positive reviews**
- **Most shoppers actively seek out negative reviews**
- **The presence of negative reviews brings authenticity to a site's review content**

¹ PowerReviews (2014): The Proven Power of Reviews

² RevooBlog, "Bad Reviews Are Good For Business"

Maslowska, E., Malthouse, E.C., and Bernritter, S. (2017), "Too Good to be True: The Role of Online Reviews' Features in Probability to Buy, International Journal of Advertising." 36(1) 142-163.

\ Variable: Number of Reviews

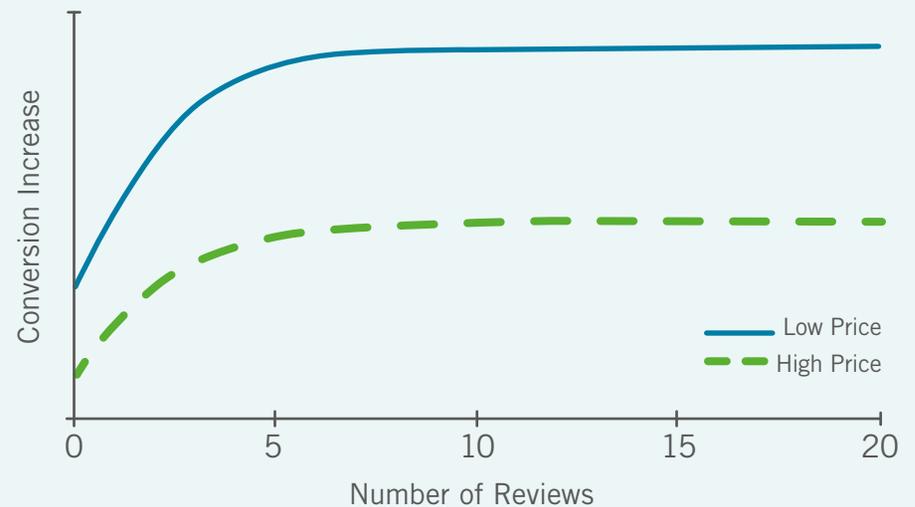
5. Initial Reviews Have the Greatest Impact

It's easy to assume that having more and more reviews will continue to help drive sales. Our research found that more reviews help, but only to a point — and that point is much lower than many might assume.

Based on our research of the gift retailer's website, we found that nearly all of the increase in purchase likelihood occurs within the first 10 reviews, and the first five reviews drive the bulk of this increase.

Askalidis, Y. and Malthouse, E. C. (2016). "The Value of Online Customer Reviews." RecSys 2016 - Proceedings of the 10th ACM Conference on Recommender Systems, 155-158. Association for Computing Machinery, Inc.

DIMINISHING MARGINAL RETURNS



For both low- and high-priced products, the marginal value of additional reviews rapidly decreases. But the point at which the impact plateaus varies depending on price point. Higher-priced items need at least five reviews to see the greatest conversion impact, whereas lower-priced items only need 2-4 reviews to see a significant impact.

\ Putting Conversion Insights to Work

What This Means for Brands



The power of online reviews to influence sales means that retailers have powerful incentives to develop effective strategies for collecting, displaying, and monitoring reviews on their websites. Reviews that are viewed as representative and credible can be a significant competitive advantage.



FOCUS ON FIRST FIVE

The first five reviews for a product have the biggest conversion impact. Focus on collecting a baseline number of reviews, especially for higher-priced products.

EMBRACE NEGATIVE REVIEWS

Allowing negative reviews on your site helps build credibility with shoppers. Rather than trying to eliminate negative reviews, monitor them and respond to them.



FOLLOW-UP BY EMAIL

Prior research from PowerReviews shows that up to 80% of reviews originate from follow-up emails urging shoppers to review their purchases.*

PRODUCT SAMPLE NEW ITEMS

In addition to email prompts, product sampling can be an effective way to generate initial reviews, particularly for new products among first-time purchasers.



STREAMLINE PLATFORMS

Make the process of posting a review as simple as possible by allowing shoppers to submit reviews with just a few clicks. Also, make it easy for shoppers to read and post reviews across all devices and platforms.

*PowerReviews Internal Data

\ Prompted vs. Unprompted Reviews

How the Source of the Reviews Impacts Ratings, Credibility, and Purchase Likelihood

Are all reviews created equal? To answer this question, we looked at data related to reviews submitted by the two primary types of reviewers: verified buyers (i.e., prompted reviews) and anonymous reviewers (i.e., unprompted reviews).

In analyzing this data, we explored three key questions:

1. Do star ratings vary depending on the source of the reviewer?
2. If so, what causes the ratings to vary between the groups?
3. Does one type of review have a greater impact on shoppers' purchase behavior?

Verified buyer (i.e., prompted reviewer): For this study, verified buyers are considered consumers who make a purchase online and receive a post-purchase email asking them to review their purchase.

Anonymous reviewer (i.e., unprompted reviewer): Anonymous reviewers are those whose purchase cannot be confirmed through an online sales transaction linked to a review prompt.

WHAT WE FOUND:

1. **Verified buyers give higher ratings**
2. **Selection bias and social influence bias shape how people write reviews**
3. **Reviews from verified buyers are perceived as more credible and have a greater impact on sales**

\ Prompted vs. Unprompted Reviews

1. Reviews from Verified Buyers Have Higher Ratings

We found that reviews from verified buyers are substantially more positive than reviews written by anonymous sources.

The average star rating for reviews from verified buyers is 4.34, compared to an average star rating of 3.89 for reviews written by anonymous reviewers. In addition, reviews from verified buyers contain a higher percentage of 5-star ratings, while reviews from anonymous reviewers have a larger percentage of 1-star ratings.

These findings are consistent with the theory that people who are self-motivated to write a review have more extreme, and often more negative reviews. We explore this selection bias in more detail later in the report.

Askalidis, Y., Kim, S.J., and Malthouse E.C. (2017), "Understanding and Overcoming Biases in Customer Reviews." *Decision Support Systems*. 97 (May 2017), 23-30.

AVERAGE STAR RATING: VERIFIED BUYERS VS. ANONYMOUS REVIEWERS



Verified buyers are more likely to give four- or five-star ratings than anonymous reviewers are. Conversely, anonymous buyers are significantly more likely to give one- and two-star reviews.

\ Prompted vs. Unprompted Reviews

2. Selection Bias and Social Influence Bias Shape How People Write Reviews

The finding that anonymous reviewers typically give lower ratings is consistent with our theory that “friction” causes selection bias when it comes to reviews. When responding to an email prompt, verified buyers typically only have to make a few clicks to submit a review. Anonymous reviewers, on the other hand, must go to the review site and create an account before they can submit a review. Thus, we hypothesize that customers who are very unhappy with their purchase are much more likely to go to the effort to post an unprompted review.

We also found that ratings from anonymous reviewers tend to decline over time while ratings from verified buyers remained steady, which suggests some degree of social influence bias is at work. Verified buyers are asked to fill out a review via email and are taken to a page where they don’t see any other reviews. Anonymous reviewers, on the other hand, have visibility to average star ratings and others’ reviews. Thus, anonymous reviewers may be influenced by the product’s average star rating or the volume or tone of review comments.



SELECTION BIAS:

Shoppers who have had a negative experience are more likely to make the effort of going to a site, creating an account, and posting a review.



SOCIAL INFLUENCE BIAS:

Verified buyers typically don’t see average star ratings when posting their reviews. Anonymous reviewers, on the other hand, do have this visibility, which could influence their ratings.

\ Prompted vs. Unprompted Reviews

3. Reviews from Verified Buyers Are Perceived as More Credible and Have a Greater Impact on Sales

We examined whether consumers evaluate reviews from verified buyers differently than reviews from anonymous reviewers. That is to say, do shoppers place more trust in a review if it's written by a verified buyer?

We found that displaying reviews written by verified buyers – identified by a “verified buyer badge” – has a positive impact on sales. This suggests that reviews written by those with direct experience using a product are considered more credible and trustworthy. The verified buyer badge shows that the reviewer is a real consumer and not someone who was paid to write a review or someone who has an axe to grind against the company.

Because verified buyers typically provide more positive reviews than anonymous reviewers, having more reviews from verified buyers provides the dual benefit of higher ratings and increased credibility.

Kim, S.J., Malthouse, E.C., and Maslowska, E. “Understanding the Role of Different Review Features in Purchase Probability” Submitted to International Journal of Advertising, 2017.

VALUE OF THE “VERIFIED BUYER BADGE”



Purchase likelihood increases **15%** when consumers are exposed to reviews written by a verified buyer vs. an anonymous review.

\ Prompted vs. Unprompted Reviews

What This Means for Brands

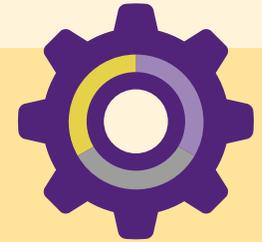


Having more reviews from verified buyers can help improve the value of the reviews in multiple ways. When developing their online review strategies, retailers should consider the various benefits of prompting reviews from customers.



ENCOURAGE VERIFIED BUYERS

Implement a post-purchase email plan to collect reviews from verified buyers. Retailers can expect to see average star ratings increase by prompting buyers to submit reviews.



OPTIMIZE DEFAULT SETTINGS

Offer a “verified buyer only” default setting on your review platform so readers can view only those reviews.



OFFER BUYER “BADGES”

In addition to fostering a representative sample of reviews, retailers can improve the perceived credibility of their sites by including “verified buyer badges.”

MITIGATE BIAS

Retailers can play an active role in mitigating selection bias and social influence bias in the online review ecosystem by incentivizing reviews from verified buyers.



BE TRANSPARENT

Be transparent about incentives used to solicit reviews (e.g. entry into a sweepstakes) or consider non-prize incentives (e.g. stars or badges for frequent reviewers).

In Review

Data-Driven Strategies to Leverage the Power of Online Reviews

Based on our extensive research into how online reviews influence purchase decisions, we recommend that retailers follow these six principles when developing an online review strategy.

Display reviews and ratings on your product website	Embrace negative reviews	Prioritize generating reviews for products with a low volume of reviews	Further prioritize generating reviews for higher-price and higher-consideration products	Overcome selection bias to improve the value of reviews	Identify reviews from “verified buyers”
Displaying reviews can increase sales by 270% on average. Retailers that choose not to feature ratings and reviews risk losing customers to a site that does. Hosting mobile-friendly sites that make it easy to view and post reviews will help retailers drive sales.	Purchase likelihood typically peaks when the average star rating is between 4.2 and 4.5 stars and starts to drop as the star rating approaches a perfect 5.0. While it may seem counterintuitive, negative reviews can have a positive impact because they establish credibility and authenticity.	The first five reviews have the biggest impact on purchase decisions. Rather than trying to generate additional reviews for all products, retailers should focus their efforts on making sure all products have at least a handful of reviews.	Reviews are more impactful for higher-priced and higher-consideration products. There’s a higher risk involved with purchasing an expensive item, a new brand, or a product that affects personal safety. Retailers can help consumers overcome this risk by providing additional reviews for these products.	A larger pool of reviewers is not always more representative, particularly if it includes a large number of anonymous reviews. Retailers can make their reviews more representative of the total universe of buyers by encouraging verified buyers to post reviews through post-purchase email prompts.	Identifying purchasers with “verified buyer badges” enhances the credibility of a review and improves the odds of purchase by 15%. Retailers should be transparent in labeling verified buyers and any tactics used to solicit their reviews.

Review the Research

Branded Apps Research Team

The research supporting this report was led by the following members of the Spiegel Research Center:

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Rebecca Wang

Assistant Professor and Research Associate

Su Jung Kim

Assistant Professor and Research Associate

Yorgos Askalidis

PhD Data Scientist

PUBLISHED RESEARCH ON ONLINE REVIEWS

The results and insights from the Spiegel Research Center's research into how online reviews influence purchase decisions have been published in the following journals and textbooks:

JOURNAL PUBLICATIONS

*Full papers available upon request

Askalidis, Y., and Malthouse, E. C. (2016). "The Value of Online Customer Reviews." RecSys 2016 - Proceedings of the 10th ACM Conference on Recommender Systems, 155-158. Association for Computing Machinery, Inc.

Malthouse, E., Maslowska, E., and Viswanathan, V. "Do Customer Reviews Drive Purchase Decisions? The Moderating Roles of Review Exposure and Price," Decision Support Systems, 2017.

Maslowska, E., Malthouse, E.C., and Bernritter, S. (2017), "Too Good to be True: The Role of Online Reviews' Features in Probability to Buy, International Journal of Advertising." 36(1) 142-163.

Kim, S.J., Malthouse, E., and Maslowska, E. "Understanding the Role of Different Review Features in Purchase Probability." Submitted to International Journal of Advertising, 2017.

Askalidis, Y., Kim, S.J., and Malthouse, E.C. (2017), "Understanding and Overcoming Biases in Customer Reviews." Decision Support Systems. 97 (May 2017), 23-30.

More Insights from the Spiegel Research Center

As the digital marketing communications landscape evolves, we will continue to look for innovative ways to measure the impact of engagement on consumer behavior.

To dive deeper into Spiegel's research into how engagement via mobile apps and other channels influences purchase behavior and customer value, we invite you to visit us online.

LEARN MORE about the Spiegel Research Center's research-driven insights on marketing communications by visiting: spiegel.medill.northwestern.edu



Social Media Contests

Do consumers who engage in social media contests buy more?



Online Negative Word-of-Mouth

Do negative posts in a social media environment impact purchase behavior?



Consumer Engagement Engine

How do the new ways that consumers engage with brands affect customer value?



Loyalty Programs

Do instant rewards drive purchase in a loyalty program?



Branded App ROI

What is the value of customer engagement via branded mobile apps?



Multi-Platform Engagement

How does multi-channel engagement affect purchase behavior?