
Breakthrough Research –
Understanding Consumers’
Emotional Response to
Protective Materials in
Parcel Packaging



Executive Summary

The type of protective packaging selected for parcel delivery has a significant impact on the consumer experience. A breakthrough independent study conducted by Packaging Insight, used a facial camera apparatus to capture emotional response when parcels were opened. One hundred twenty-three participants evaluated traditional protective package material types (loose-fill “peanuts”, paper, square-pattern bubble cushioning and air pillows). Peanuts caused the greatest amount of consumer frustration with approximately 18% of the participants showing irritation with the material type.

In addition to emotion tracking, survey questions explored the impact of receiving damaged items. An overwhelming 73% of participants indicated that they would be unlikely to purchase from the company again after receiving a damaged item. This compelling statistic highlights the importance of product protection. In fact, product protection was ranked as the “most important” characteristic of the packaging materials used to ship items to their final destination (as compared to sustainability and ease of product removal) by 80% of participants.

The study clearly illustrates that packaging has an impact on consumer perception and human emotion. Even more telling is the impact that damage can have on lifetime customer value. Bottom line, material selection matters and companies shipping to consumers should take note.



Introduction

CPGs invest significant time and resources designing products to grab consumer attention in the retail environment. Yet, when it comes to parcel delivery, there is little attention given to understanding how dunnage (bubble cushioning and peanuts, for instance) impacts the consumer experience. With record-breaking parcel deliveries to homes, online shopping an established standard, and new product unboxing a social media art, understanding the post-purchase parcel moment when the consumer interacts with your brand in the ubiquitous brown package has never been more important.¹

Emotional analysis of shopper behavior is relatively new. Pregis is one of the first packaging providers to generate benchmarks on consumers interacting with materials. Conducted at Clemson University by Package InSight, the study deployed a facial camera apparatus which measures and codes 40+ facial muscles to determine human emotion on a 7-point scale. The study evaluated traditional protective package material types (loose-fill “peanuts”, paper, square-pattern bubble cushioning and air pillows). Self-report survey data was also collected and analyzed for correlation between the qualitative and quantitative data.

Understanding Protective Packaging

Package InSight collaborated with Pregis on developing a realistic methodology so that participants received a parcel delivery in an environment modeled after a home setting. Over the course of four days, 123 participants (81 female, 42 male) wore a facial camera apparatus while opening a package delivered to them. Participant’s facial expressions were captured to provide insight on their emotions when opening packages containing various protective packaging materials.

Over half of the participants were frequent online shoppers having purchased items at least once a month, with approximately 20 percent purchasing online weekly. Study participants ranged in age from under 21 to over 65, with 60% of respondents between 21 and 39.

Participants were invited into the “home environment” and fitted with a facial camera. Once the camera was calibrated and fitted comfortably, the participant was given a test scenario by the researcher:

“You are going to receive a present in the mail from your distant relative. As you would in your own home, please open the package, remove and unpack the items, and discard the packaging.”

The items in the package were selected to develop a broad understanding of handling and experience across fragile, durable, large and small format products. Specifically, the package contained the following items: a salt shaker, holiday candle, plate, picture frame, dental floss, water glass and a light bulb. Blue (recycling) and standard trash receptacles were available for the participant to discard the packaging materials. As each were completed the task, researchers recorded their disposal choice. Following the task, participants were asked to complete a survey with questions concerning the study.

1. <http://www.usatoday.com/story/money/business/2014/12/23/package-postal-service-delivery-holiday/20813279/>

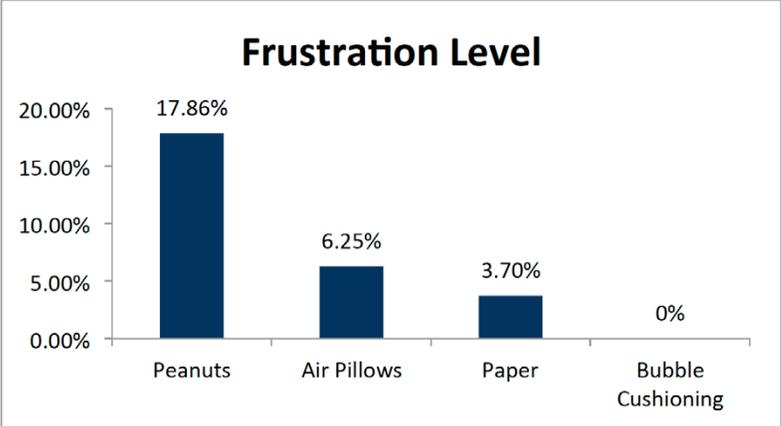
In addition to emotion tracking, survey questions explored the impact of receiving damaged items. Overwhelming, 73% of the participants indicated that they would be unlikely to purchase from the company again after receiving a damaged item. This compelling statistic highlights the importance of the product protection. In fact, product protection was ranked as the “most important” characteristic of the packaging materials used to ship items to their final destination (as compared to sustainability and ease of product removal) by 80% of participants.

Method of Disposal

The most commonly recycled material was air pillow packaging (75%), followed by paper (64%). Packaging peanuts were most readily disposed in the trash (56%). The air pillow, which scored the highest recycling rate in the study, was the only material with a printed message stating its ability to be recycled. That message was supported by a visual cue—the material’s green tint. Approximately a third of the participants that received a package with air pillows deflated them before discarding.

Documented Emotional Responses

Participants were asked in a post survey to select how they were feeling when opening the parcel package, removing the packaging material, and discarding the packaging. Emotions included: excitement, neutral, joy, frustration, joy, relief, anger and sadness. It was found that peanuts caused the greatest of frustration, with square-pattern bubble cushioning scoring 0% frustration. The frustration level for paper logged in at 3.70% and air pillows measured at 6.25%.



Participants were 39% more frustrated when opening parcel packaging containing peanuts compared to paper, 40% more frustrated when opening the peanuts compared to bubble cushioning and 37% more frustrated when opening the peanuts compared to air pillows. Overall, **square pattern bubble cushioning, paper, and air pillow packaging provided the most positive experiences** for the participants when removing the packaging material.



Participants in the study showed a neutral emotion when discarding all of the packaging materials, with the exception of peanuts, which they enjoyed throwing away. Peanuts were rarely recycled and the only packaging material that resulted in accidental discard of products.

As the participants were completing the task, researchers on site recorded the disposal choice for each. Following the task, participants were asked to complete a post survey with questions about the study.

Impact of Product Damage on Human Emotion

Some items in the study packages were purposely damaged. Participants reported that product damage has an impact on emotion, resulting in self report of increased frustration (65%), anger (30%) and sadness (10%).

More than 80% of participants indicated they have received a parcel package containing a damaged item, and 73% of participants reported they would be unlikely to purchase from the company again after receiving a damaged item. Ultimately, product protection is crucial with the majority of consumers (80%). It was ranked the most important packaging material characteristic ahead of appearance, ease of product removal and reusability.

Emotional analysis proves corresponding results to survey data

Facial expression data collected for this study was analyzed using an emotional analytical algorithm developed by Emotient (recently acquired by Apple). More than 120 videos were processed and aggregated for groups of participants in each protective packaging material type (peanuts, paper, square-pattern bubble cushioning, air pillows). The analytical process detects and measures expressions of seven primary emotions: joy, surprise, disgust contempt, anger, sadness and fear. The emotional algorithm measures subtle and overt emotional facial expressions expressed by the physiological representation of emotion.

Data Analysis Interpretation

Emotion was calculated using a logarithmic model for emotions being present (positive) versus not present (negative).

Participants were the most frustrated when opening the package containing peanuts. The emotional reading (or value) for packaging peanuts indicated participants were approximately 10 times more likely to be categorized as frustrated than not frustrated. When analyzing the results of all packaging forms for each expression channel, it can be concluded that positive results were seen for bubble cushioning and air pillow packaging. Bubble cushioning and air pillow packaging create the least frustration. Peanuts caused the most joy when disposing most likely because participants were relieved to clean up the mess. The participants were the least irritated when disposing bubble cushioning materials.

Summary

Protective materials within parcel packaging should be a deliberate consideration for all brands delivered to the home. The study illustrates that packaging has an impact on consumer perception and human emotion. Bottom line, materials matter.

Brands delivered via parcel post are subjected to similar preconceived notions and shelf appeal like those sold in the retail outlets. For retail – it’s shelf impact; for home delivery, it’s what’s in the box. The study indicates that packaging materials connect with consumers and influence behaviors and actions.

Package InSight is a high technology startup focused on analyzing and developing consumer-driven packaging. As an Executive Member of the Sonoco Institute of Packaging Design and Graphics at Clemson University, Package InSight leverages 7+ years of nonconscious consumer research specific to retail packaging and point of purchase marketing.

The study was sponsored by Pregis, leading provider of innovative protective packaging materials and systems. The company offers solutions for a wide variety of consumer and industrial market segments including food, beverage, healthcare, medical devices, agricultural, e-commerce, retail, automotive, furniture, electronics, construction and military/aerospace. For more information: www.pregis.com.

