

Envases y comportamiento del consumidor: Percepciones del diseño del tubo de Pringles y su relación con las preferencias de compra¹

Packaging and Consumer Behavior: Perceptions of the Pringles Tube Design and Associations with Purchase Preferences

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Abstract

This study analyses consumer perceptions of the Pringles potato snack packaging, focusing on its distinctive tube design. Employing a sequential explanatory mixed-methods design, quantitative data from an online survey (n=779) gathered via non-probability convenience sampling through social networks and Internet were combined with qualitative insights from two interviews. The sample, while international, showed a notable concentration of participants from Spain. Survey responses regarding packaging preferences (tube vs. bag) and perceptions of attributes such as functionality, sustainability, and accessibility were analysed descriptively. Results indicate that while the Pringles tube is perceived positively for aspects like protection and freshness, a majority of respondents (75,1 %) preferred the traditional bag format. The qualitative interviews provided complementary individual perspectives. The study highlights the importance of consumer perception in packaging design.

Keywords: packaging design, consumer behaviour, potato snacks, Pringles, brand perception.

Resumen

Este estudio analiza las percepciones de los consumidores sobre el empaque del snack de patata Pringles, centrándose en su diseño distintivo en forma de tubo. Utilizando un enfoque mixto secuencial explicativo, se combinaron datos cuantitativos de una encuesta (n=779) recopilada mediante muestreo no probabilístico por conveniencia a través de redes sociales e internet, con perspectivas cualitativas de dos entrevistas. La muestra, aunque internacional, presentó una notable concentración de participantes de España. Se analizaron descriptivamente las preferencias declaradas de los encuestados respecto al empaque (tubo vs. bolsa), así como sus percepciones sobre atributos como funcionalidad, sostenibilidad y accesibilidad. Los resultados indican que, si bien el tubo de Pringles es percibido positivamente en aspectos como protección y frescura, una mayoría de los encuestados (75,1 %) prefiere el formato de bolsa tradicional.

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Los datos cualitativos proporcionaron perspectivas individuales complementarias. El estudio destaca la importancia de considerar la percepción del consumidor en el diseño de empaques.

Palabras clave: diseño de empaque, comportamiento del consumidor, snacks de patata, Pringles, percepción de marca.

Introduction

The role of product packaging in consumer decision-making has garnered increasing attention within marketing literature, extending far beyond its primary function of containment and protection (Underwood, 2003). Contemporary packaging serves as a powerful non-verbal communicator, significantly influencing brand perception, perceived value, and ultimately, consumer purchase intentions and loyalty (Hasan et al., 2025). Within the highly competitive snack food industry, where products often share similar core ingredients and taste profiles, packaging emerges as a critical differentiator, potentially shaping consumer choice at the point of sale (Schretlen, 2023).

Packaging has ceased to be considered exclusively a functional element and has become a strategic resource for communication and brand building. In this regard, the holistic design of the package, understood as the combination of visual and structural elements, directly influences the impressions that consumers develop about the quality, personality, and positioning of a brand (Orth & Malkewitz, 2008).

The concept of packaging encompasses multiple dimensions, including functional attributes (e.g., protection, preservation, resealability, ease of access), sensory and aesthetic elements (e.g., colour, shape, imagery, material texture), and symbolic or informational cues (e.g., brand logo, sustainability messaging) (Underwood, 2003). Each dimension contributes uniquely to the consumer's holistic evaluation of the product and brand. Functional aspects address practical needs and convenience, directly impacting usability and perceived utility. Sensory and aesthetic elements evoke emotional responses and facilitate brand recognition, fostering initial attraction and potential preference. Symbolic and informational cues communicate brand values, quality signals, and can influence perceptions regarding healthiness or environmental responsibility (Hasan et al., 2025).

Specifically, the functional dimension of packaging has been shown to play a critical role in consumer acceptance and usage satisfaction (Arora et al., 2020). Attributes such as resealability, protection against breakage, and ease of dispensing are valued for their practical benefits (Infopack, 2023). However, consumer perceptions of functionality can sometimes be nuanced; while the Pringles tube offers clear advantages in terms of freshness and protection (ThePackagingPortal, 2024), some consumers might perceive the design as less convenient for accessing the last few chips, potentially impacting the overall consumption experience (Arreza, 2024). This

highlights the importance of balancing various functional aspects according to consumer needs and preferences.

Consumer perception of packaging is intricately linked to several key constructs central to this study. Perceived value is often formed through the interaction of the product's perceived benefits relative to its cost, with packaging contributing to both the perceived benefit (e.g., freshness, quality, convenience) and the perceived cost (e.g., price premium for premium packaging) (Underwood, 2003). Consumer attitudes towards the product and brand are shaped, in part, by the packaging's ability to signal quality, align with personal values, and provide a satisfying user experience (Schretlen, 2023). These attitudes, alongside perceived value, strongly influence purchase intentions, which represent a key antecedent to actual buying behaviour. Furthermore, positive experiences and consistent positive associations fostered by effective packaging can contribute to brand loyalty, encouraging repeat purchases (Hasan et al., 2025).

Environmental sustainability has emerged as a critical factor influencing consumer evaluations of packaging (Infopack, 2023). Increasingly, consumers consider the recyclability and environmental footprint of packaging materials when forming opinions about brands (ThePackagingPortal, 2024). This dimension adds complexity to packaging design decisions, as companies must balance functional and aesthetic appeal with growing ecological concerns. The perceived sustainability of a package can directly influence purchase intentions, especially among environmentally conscious consumers (Hasan et al., 2025).

Recent studies highlight that packaging acts not only at the point of purchase but also actively participates in building the overall brand image throughout the entire consumption experience. From the consumer's perspective, packages are evaluated through functional, symbolic, and social dimensions, which are subsequently integrated into brand associations (Ghorbani & Westermann, 2025).

The case of Pringles offers a compelling lens through which to examine these relationships. Its distinctive tubular packaging, designed for protection, stackability, and resealability, represents a unique functional and visual identity within the snack category. Prior research, such as Valérie Schretlen's (2023) thesis, specifically explores how this iconic packaging impacts the consumer decision-making process, providing a relevant theoretical and empirical foundation. However, understanding consumer perceptions requires acknowledging the interplay of various packaging attributes, including not only functionality but also aspects related to

sustainability and accessibility, which are increasingly important to modern consumers (Hasan et al., 2025). Moreover, consumer responses are not uniform and can be moderated by cultural and demographic factors, leading to varying preferences and associations across different markets and population segments (Underwood, 2003).

Despite its market presence and unique packaging, there remains a need to empirically investigate how consumers perceive the specific attributes of the Pringles tube and how these perceptions relate to key behavioural outcomes like purchase intention and loyalty, particularly when compared to conventional packaging formats. While existing studies touch upon branding and marketing strategies (Hasan et al., 2025) or focus on the process itself (Schretlen, 2023), a more explicit examination of the relationship between specific perceived packaging attributes (functional, sustainable, accessible) and downstream consumer responses (perceived value, attitude, intention, loyalty) is warranted, taking into account potential cultural variations.

Therefore, this study aims to analyse consumer perceptions of the Pringles tube packaging, focusing on how consumers evaluate its functional, aesthetic, and environmental attributes, and how these evaluations influence their perceived value, attitudes, purchase intentions, and loyalty towards the brand, while exploring potential differences based on demographic and cultural factors.

Objectives of the study

This research aims to explore several objectives: assess consumer perceptions of Pringles' tube packaging and explore its association with consumer purchasing decisions, determining whether it plays a central or supporting role in brand choice. It also compares the functional and perceived pros and cons of Pringles' tube versus traditional chip bags, focusing on protection, ease of use, and market appeal. Additionally, it evaluates consumer preferences for packaging attributes like convenience, freshness, sustainability, and accessibility. The study examines perceived cultural differences in how the packaging is viewed across regions and explores how brand loyalty and familiarity are associated with consumer preferences, especially regarding perceived associations between packaging and brand identity and retention.

Methodology

This study employed a Sequential Explanatory Mixed-Methods Design. The research began with the collection and analysis of quantitative data through an online survey to understand general consumer preferences and perceptions regarding Pringles' tubular packaging compared to other formats. Following the quantitative phase, qualitative insights were gathered through semi-

structured interviews. The purpose of this sequential approach was to provide deeper contextual understanding and explanation for the patterns observed in the survey responses. The quantitative component carries the primary weight in terms of sample size and breadth of data, while the qualitative component serves a supplementary role, offering richer detail and potential rationales behind the numerical findings. The integration of the datasets occurred primarily during the interpretation stage, where qualitative themes were used to elucidate the meaning underlying the quantitative results. Specifically, the interview data aimed to complement the survey findings by exploring the reasoning behind stated preferences and perceptions. Consequently, findings from the interviews should be interpreted as illustrative examples rather than representative of broader consumer views derived from the survey. Combining both quantitative and qualitative techniques to explore consumer perceptions of Pringles' packaging.

Data collection involves online surveys, interviews with Erasmus students from Taiwan and Japan, and secondary research. The survey was distributed in multiple languages and targeted 779 respondents, focusing on factors like snack consumption frequency, brand selection, and perceptions of packaging. The qualitative interviews provided deeper insights into emotional impacts, perceived strengths and weaknesses, and cultural differences regarding packaging. Secondary data from industry reports and academic studies helped contextualize findings.

The survey was distributed online, initially targeting participants from university forums and then shared via social media networks. Participants were recruited through a convenience sampling approach, where initial respondents were encouraged to share the link with their personal and professional networks. The sample included individuals reporting varying frequencies of snack consumption (frequent, occasional, non-consumers), although it showed a notable concentration of respondents from Spain. Data analysis included descriptive statistics for survey results and thematic coding for interview data, categorizing responses into key themes like usability and sustainability. A comparative analysis was also conducted to assess Pringles' packaging against competitor brands such as Lay's and Ruffles. This methodology offers insights into perceptions of Pringles' packaging within the specific sample recruited, acknowledging the limitations inherent to non-probabilistic sampling.

Ethical Considerations

Data collection was conducted exclusively through an anonymous online survey without gathering personally identifiable information (e.g., names, addresses, IP addresses were not tracked) and posed minimal risk,

formal review by an ethics committee was not deemed necessary standards for low-risk, anonymous research. Participation was entirely voluntary. An introductory statement on the survey platform informed participants about the study's purpose and confirmed that completing the questionnaire constituted informed consent. Data were handled confidentially and stored securely.

Survey Instrument Description and Validation

The primary data collection instrument was an online questionnaire developed specifically for this study using Google Forms. Items were constructed based on the review of literature on consumer perception of packaging (e.g., (Underwood, 2003; Schretlen, 2023; Hasan et al., 2025), perceived value, and consumer behaviour. Standard Likert-type scales were used to measure agreement or frequency (e.g., ranging from 1 = Nothing/Strongly Disagree to 7 = Absolutely/Strongly Agree, depending on the item) for statements regarding packaging attributes (e.g., accessibility, practicality, sustainability) and consumer perceptions (e.g., likelihood to buy, brand loyalty). Demographic and consumption habit questions used nominal or ordinal scales.

The questionnaire was initially drafted in Spanish and subsequently translated into English and Japanese. The translation process involved native speakers and back-translation checks to ensure semantic equivalence across versions. A pilot test was conducted with a small group of individuals (n=10) to assess clarity and identify potential issues. Minor adjustments were made based on feedback before the main data collection.

Missing data were addressed by excluding cases with critical missing responses (e.g., entire sections unanswered) during the analysis phase. For individual items within scales, responses were treated on a pairwise basis for descriptive statistics, and listwise deletion was applied for correlation/regression analyses where specified.

The complete raw survey data and the questionnaire are available as a dataset at Zenodo (López, Matellanes, & Bustos, 2025). The survey was administered via web links available in Spanish, English, and Japanese, the content of which corresponds to the data collected and reported.

Results

Consumer survey analysis

Survey distribution and participant demographics

To conduct a thorough analysis and obtain realistic data for this project, a comprehensive 21 question survey was designed to cover multiple aspects of consumer behaviour and preferences. The survey was made available in three languages—Spanish, English, and Japanese—to maximize participation from different regions and ensure a diverse sample. It was distributed online to hundreds of people across various countries, allowing for a global perspective on potato chip consumption. The primary focus was to analyse purchasing habits and preferences for fried potato snacks, particularly Pringles, while also exploring other important aspects that influence consumer choices beyond the product itself.

The survey yielded 779 responses, with the majority coming from Spanish-speaking participants. Specifically, 597 responses were in Spanish. While responses from international participants were valuable for describe global consumer behaviours, they were not entirely representative of any specific market. However, the Spanish survey provided a solid foundation for market analysis, nearly doubling the ideal sample size of 385 respondents recommended by SurveyMonkey for studies (SurveyMonkey, 2024)

In terms of geographical distribution, most responses came from Spain (76,63 %). The English version was primarily answered by participants from USA, Portugal, and Germany while the Japanese version was mostly completed by respondents in Tokyo (Japan). The broad geographical range of participants allowed for interesting comparisons between different consumer behaviours across regions.

Gender, age, and lifestyle of participants

Among the 779 respondents: 456 identified as female, 322 as male and 1 as non-binary. The age range of respondents varied widely, from 6 to 93 years old. The average age was calculated separately for different gender groups: Women average age of 34 years. Men: Average age of 32 years. And the unique non-binary respondent: 23 years old.

Regarding lifestyle and health consciousness, most participants classified themselves as “somewhat active”, while the majority described their diet as “quite healthy”. Only a small percentage of participants reported having a completely sedentary lifestyle or an extremely unhealthy diet. These factors are important when analysing food consumption patterns, as individuals who engage in regular physical activity or maintain a healthy diet may have different purchasing behaviours compared to those who are less health conscious.

Table 1

Relationship Between Physical Activity Levels and Perceived Dietary Health

Dietary Health	Physical Activity							Total
	1. Total ly sedenta ry	2. Mostly sedentary	3. Somew hat sedentary	4. Neither	5. Someth ing active	6. Mostly Active	7. Fully Active	
1. Not healthy at all	-	-	1	1	-	-	-	2
2. Unhealthy	2	7	1	2	1	2	1	16
3. Something Healthy	-	7	17	18	17	7	-	66
4. Neither	1	6	19	36	36	17	8	123
5. Pretty healthy	-	7	22	43	103	73	31	279
6. Very healthy	3	3	7	29	62	76	62	242
7. Totally healthy	1	1	1	2	9	13	24	51
Total	7	31	68	131	228	188	126	779

Source: survey.

Consumer preferences

Survey results indicated that Pringles' tube packaging is perceived as a premium and practical option, particularly in terms of freshness preservation and convenience. However, some respondents found the packaging less accessible compared to traditional plastic bags.

The three packaging types (Table 2), Tube packaging tends to have the highest perceived value, with an average

price of €1,63, Bag packaging is consistently rated around €1,56, making it the most stable in price perception. 23,75 % of respondents preferred tube packaging (Table 3), while 75,09 % preferred plastic bags. The overall average perceived fair price for a pack of chips across all occupational groups and packaging types is €1,57.

Table 2

Perceived Fair Price for a Pack of Chips Based on Occupation and Preferred Packaging

	Perceived Fair Price for a Pack of Chips and occupation										
Preferred Packaging	Work and study		Neither		Retired		Study		Work		AveragePrice
	Price	(n)	Price	(n)	Price	(n)	Price	(n)	Price	(n)	
Bag	1,55 €	245	1,63 €	11	1,66 €	26	1,52 €	173	1,61 €	132	1,56 €
Other	1,30 €	5	0,50 €	1	0,00 €	1			1,00 €	1	1,00 €
Tube	1,63 €	83	1,25 €	2	1,42 €	6	1,52 €	58	1,87 €	35	1,63 €
Total	1,56 €	333	1,49 €	14	1,56 €	33	1,52 €	231	1,66 €	168	1,57 €

Source: survey.

In contrast, 585 respondents preferred traditional plastic bags over tube. Some participants also expressed interest in eco-friendly alternatives, such as paper bags and biodegradable containers, indicating an increasing awareness of environmental concerns and potential opportunities for brands to innovate in sustainable packaging solutions.

Factors valued in Pringles packaging

The analysis of consumer preferences (Table, 4) regarding potato chip packaging reveals that practicality

is prioritized over aesthetics. The most valued characteristic is "Ease of extracting what is inside", with 69,06 % of respondents rating it as "Quite" or higher. Durability (60,86 %) and Recycling possibility (52,55 %) also rank highly, indicating that consumers appreciate sturdy packaging that preserves the product while also being environmentally friendly. In contrast, "Appearance" is the least important factor, with 52,88 % of respondents scoring it at 3 or lower, suggesting that while an attractive design may help with initial appeal, it is not a decisive factor in purchase decisions.

Table 3*Packaging Preferences on Pringle Consumers Potato Chips*

Preferred Packaging	Are you Regular Consumer of Pringles?			
	Yes	No	Sometimes	Total
Bag	97	199	289	585
Tube	20	86	79	185
Other packaging	1	7	1	9
Total	118	292	369	779

Source: survey.

These suggest that brands should focus on improving packaging accessibility, durability, and sustainability to meet consumer expectations. Packaging solutions that allow for easier access, better reliability, and compact store will likely enhance customer satisfaction. Moreover, with over half of respondents valuing eco-

friendly packaging, investing in recyclable materials and sustainable designs could provide a competitive advantage. Ultimately, practicality and sustainability are key drivers in shaping consumer perceptions of potato chip packaging, and brands that align with these values will be better positioned in the market.

Table 4*Key Characteristics Valued in Potato Chip Packaging*

	Appearance	Endurance	Resealability	The inside is protected	Easy to extract	Recycling possibility	Easy to store	Total
Nothing	25,13 %	10,73 %	11,26 %	10,47 %	5,50 %	22,77 %	14,14 %	7,01 %
Little	26,39 %	17,97 %	9,56 %	11,47 %	7,46 %	13,77 %	13,38 %	9,59 %
Something	18,37 %	16,18 %	15,24 %	13,67 %	13,78 %	12,00 %	10,75 %	17,57 %
Quite enough	19,51 %	15,66 %	13,99 %	14,63 %	7,19 %	15,92 %	13,09 %	14,31 %
Quite	13,05 %	18,88 %	12,48 %	14,02 %	16,29 %	11,10 %	14,18 %	22,63 %
A lot	4,49 %	9,73 %	18,45 %	15,46 %	21,70 %	13,09 %	17,08 %	14,71 %
Absolutely	2,58 %	7,23 %	16,65 %	17,68 %	20,13 %	17,94 %	17,81 %	14,21 %

Source: survey.

Additionally, qualitative feedback from respondents highlighted both advantages and disadvantages of the Pringles tube. While some appreciated its stackability, resealable lid, and protection against breakage, others found it inconvenient to store, difficult to use, or environmentally unfriendly.

Consumer Preferences for Taste in Potato Chips

The analysis of taste preferences in potato chips indicates that a significant portion of respondents (37,28 %) do not

place much emphasis on any specific taste when selecting their chips. Among those who do have preferences, salty and umami Flavors seem to be the most valued, particularly among respondents who ranked their preference as "quite enough" or higher. For instance, 156 respondents (20 % of those with strong taste preferences) marked "absolutely" for salty taste, while umami and sour tastes also received notable support. Conversely, bitterness is the least valued taste, with most respondents ranking it as "nothing" or "little."

Table 5*Taste Valued in Potato Chip Packaging*

	What sense of taste do you value most in chips?									
	Sweet		Sour		Salty		Bitter		Umami	
	(n)	%	(n)	%	(n)	%	(n)	%	(n)	%
1. Nothing	372	47,75 %	323	41,46 %	9	1,16 %	435	55,84 %	313	40,18 %
2. Little	127	16,30 %	105	13,48 %	55	7,06 %	93	11,94 %	90	11,55 %
3. Something	138	17,72 %	159	20,41 %	28	3,59 %	131	16,82 %	91	11,68 %
4. Quite enough	87	11,17 %	93	11,94 %	199	25,55 %	65	8,34 %	118	15,15 %
5. Quite	38	4,88 %	71	9,11 %	219	28,11 %	46	5,91 %	74	9,50 %
6. A lot	11	1,41 %	16	2,05 %	113	14,51 %	4	0,51 %	40	5,13 %
7. Absolutely	6	0,77 %	12	1,54 %	156	20,03 %	5	0,64 %	53	6,80 %

What sense of taste do you value most in chips?										
	Sweet		Sour		Salty		Bitter		Umami	
	(n)	%	(n)	%	(n)	%	(n)	%	(n)	%
	779	100 %	779	100 %	779	100 %	779	100 %	779	100 %

Source: survey.

These findings suggest that saltiness remains a dominant factor in chip preferences, aligning with traditional snack industry trends. However, the growing interest in umami flavours hints at a potential shift in consumer preferences (Figure 1), possibly due to increased exposure to global flavours (Figure 2) and culinary diversity. Brands aiming to cater to emerging trends could explore more umami-forward flavour (Figure 3) profiles while maintaining the classic salty appeal that remains a key driver in consumer choice.

The data reveals significant variation in how consumers associate colours with potato chip packaging. The most dominant response, with 30,92 % indicates that many participants do not strongly associate a specific colour with chip packaging. However, among those who do, red, yellow, and green emerge as the most identified colours. Red, for example, received 238 "Absolutely" responses, the highest among all colours in the strongest preference category, while yellow and green also had notable support in the higher preference categories. This suggests that these colours are more strongly linked with chip packaging in consumer perception.

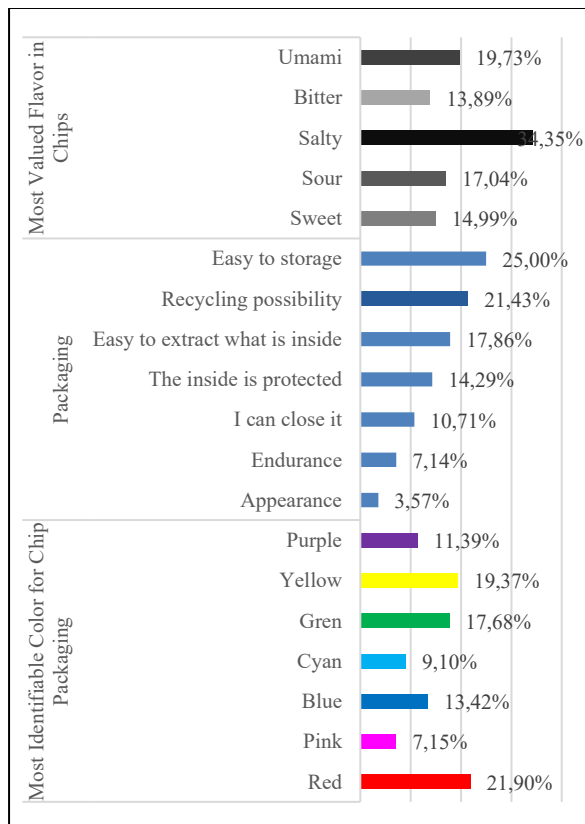


Figure 1

Most Valued, Flavors, Packaging Characteristics and Colors for Potato Chips (Percentage of Respondents, N=779)

Source: survey

On the other hand, blue, pink, cyan, and purple appear to have weaker associations, with fewer participants selecting them in the "Quite," "A lot," or "Absolutely" categories. Notably, pink has a high number of responses in the "Nothing" category (511 responses), indicating that many consumers do not associate it with chip packaging at all. This could suggest that while some colours are strongly linked to snack branding, others may be perceived as less conventional for potato chips. Understanding these colour preferences could help brands align their packaging strategies with consumer expectations.

Cultural variations

Variations in consumer responses were observed across 38 countries represented in the sample. However, given the significant concentration of responses from Spain (n=597), (76,63 %), broad generalizations about national or cultural differences in packaging perception are not supported by this dataset. The observed variations should be interpreted as differences within the sample rather than definitive cross-cultural patterns. Insights gathered from the qualitative interviews with individuals from Taiwan (n=9) and Japan (n=23) provide perspectives on the Pringles tube. These accounts offer exploratory viewpoints and illustrate potential areas for future investigation but cannot be considered representative of consumer views in those countries or used to draw comparative conclusions with the broader survey data from other regions.

Table 6

Identified color in Potato Packaging

What color do you identify with the chips packaging?										
	Red		Pink		Blue		Cyan		Green	
	(n)	%	(n)	%	(n)	%	(n)	%	(n)	%
1. Nothing	52	6,7 %	511	65,6 %	207	26,6 %	379	48,6 %	129	16,5 %
2. Little	48	6,7 %	89	11,4 %	132	16,9 %	131	16,8 %	77	9,9 %
3. Something	36	4,6 %	127	16,3 %	108	13,8 %	130	16,7 %	64	8,2 %
4. Quite enough	83	10,6 %	33	4,2 %	138	17,7 %	80	10,8 %	128	16,4 %
5. Quite	171	21,9 %	9	1,2 %	99	12,7 %	43	5,5 %	153	19,6 %
6. A lot	151	19,4 %	7	0,9 %	47	6,0 %	10	1,3 %	108	13,8 %
7. Absolutely	238	30,5 %	3	0,4 %	48	6,2 %	6	0,8 %	120	15,4 %
	779	100 %	779	100 %	779	100,00 %	779	100 %	779	100 %

Source: survey.

Pringles consumption and perception of the tube packaging

One of the key questions in the study aimed to determine whether the Pringles tube influences purchasing decisions (Table 3) reveals a strong preference for bagged packaging, regardless of consumption frequency. Among respondents, 75,09 % (585 out of 779) prefer bags over tubes (23,74 %) and other packaging types (1,15 %). Even among regular Pringles consumers, who are more familiar with the brand's signature tube packaging, 97 out of 118 (82,2 %) still favour bags. This suggests that despite the brand identity associated with tube packaging, practicality and familiarity with traditional chip bags influence consumer preferences.

Moreover, results indicate that Pringles' tube packaging may not align with most consumer preferences, even among those who consume the product regularly. While the tube format offers advantages such as stackability and protection against breakage, many consumers may still find bags more convenient due to ease of store, accessibility, or price considerations. Brands like Pringles could explore alternative packaging options, such as resealable bags or hybrid formats, to better cater to consumer demands while maintaining their brand identity.

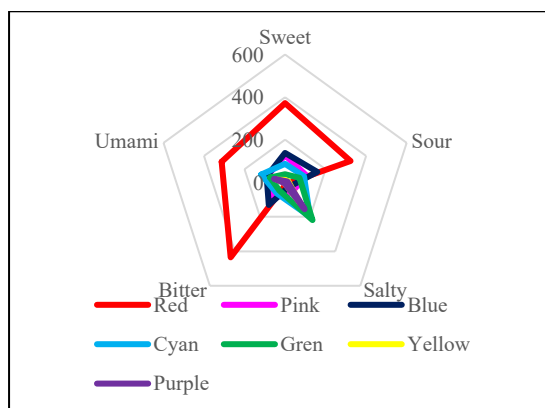


Figure 2

Consumer Ratings, Flavors, and Colours for Potato Chips (Response Counts, N=779)

Source: survey.

These findings suggest that while the Pringles tube is generally well-received, opinions are somewhat divided. A significant portion of respondents remained neutral, indicating that packaging is not the primary factor driving purchase decisions. Instead, elements such as flavour, nutritional value, or price likely play a more significant role in consumer choices.

Interview analysis: Insights from Taiwan and Japan

To complement the survey data, two structured interviews were conducted with Erasmus students En Ni Chou (Taiwan) and Teru Ogawa (Japan) to delve into regional snack preferences and packaging perceptions.

Findings from En Ni Chou (Taiwan)

Taiwanese consumers do not necessarily prefer foreign snacks over local brands; choices are product specific. Popular Flavours include Oyster Omelette Flavour Potato Chips, preferred for their balanced seasoning. Both salty and sweet snacks are consumed, but potato chips are more common in social gatherings. Snacks are used in traditional rituals such as ancestor worship, where potato chips are preferred over gum or chocolate.

Findings from Teru Ogawa (Japan)

Japanese consumers favour local brands due to perceptions of safety and quality. the most popular potato chip brand is Calbee. Salty snacks dominate the market, with potato chips being a top choice. Snacks are widely consumed by both adults and children, contradicting the notion that they are primarily for younger demographics.

Globalization and market differences

Despite their geographical proximity, Taiwan and Japan exhibit contrasting levels of globalization in snack consumption. While Taiwan embraces global brands and Flavours, Japan remains more insular, favouring domestic products. This highlights the challenges that international snack brands face when entering the Japanese market, where local preferences and cultural factors play a significant role in consumer decisions.

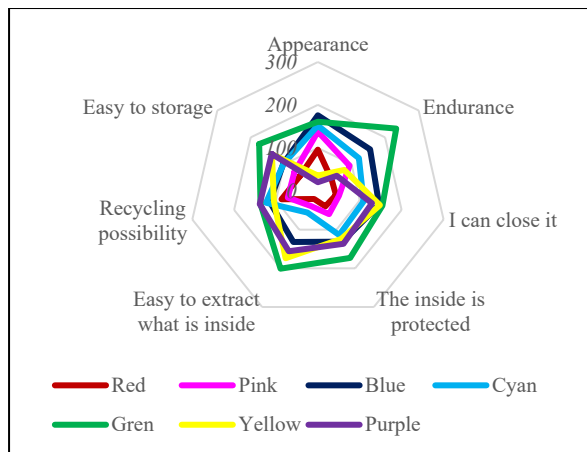


Figure 3

Consumer Ratings of Packaging Characteristics, and Colours for Potato Chips (Response Counts, N=779)

Source: survey.

Discussion

The findings of this study confirm that Pringles' tube packaging significantly influences consumer perception, acting as a distinguishing feature in the snack industry. However, packaging alone does not dictate purchase behaviours; factors such as taste, price, brand loyalty, and regional market dynamics are also critical determinants. While Pringles' packaging is often perceived as premium and practical, there are areas where it falls short, particularly regarding accessibility and environmental sustainability.

Market implications

The snack industry continues to evolve, with packaging playing a vital role in consumer engagement, product differentiation, and environmental impact. The Pringles tube has been an iconic packaging format for decades, yet consumer responses indicate the necessity for further innovation. Companies in this sector should consider balancing aesthetics, functionality, and sustainability to meet modern consumer demands.

The shift toward eco-friendly materials is evident in consumer preferences, with a growing percentage of respondents expressing concerns about the recyclability of the Pringles tube (Figure 3). Brands that invest in biodegradable packaging solutions or materials that are easier to recycle could enhance their appeal to environmentally conscious consumers. Additionally, smaller, single-serving tube formats could cater to markets where portion control and convenience are key purchasing drivers.

Moreover, regional adaptation of packaging strategies could further strengthen market penetration. In Japan, for instance, aesthetic and collectible packaging designs drive consumer engagement, whereas in Spain, price sensitivity plays a more significant role. Understanding these regional preferences allows brands like Pringles to tailor their packaging and marketing strategies accordingly.

Consumer behaviour insights

The research highlights that Pringles is perceived as a premium snack, with lower purchase frequency compared to conventional potato chips. This suggests that many consumers view Pringles as an occasional treat rather than a staple snack. This positioning provides both opportunities and challenges for the brand. While the premium perception enhances brand value, it may also limit market share among consumers seeking more affordable, everyday snack options.

Marketing strategies should therefore emphasize value for money, promoting the product through special offers, bulk purchasing incentives, and loyalty programs to encourage more frequent consumption. Additionally, further enhancements in packaging design, particularly improving accessibility, could remove barriers for consumers who find the tube inconvenient.

A key consumer concern is the difficulty of extracting the last few chips from the Pringles tube. Addressing this issue through a redesign of the packaging or alternative dispensing mechanisms could enhance the user experience and foster greater brand loyalty.

Cultural and regional differences

A significant insight from the study is the variability in snack consumption patterns across cultures. The interviews conducted in Taiwan and Japan highlight how cultural factors influence snack preferences and purchasing behaviours. While Taiwanese consumers demonstrate an openness to both local and foreign snack brands, Japanese consumers overwhelmingly prefer domestic products due to perceptions of quality and safety.

Additionally, the study reveals differing attitudes toward snack consumption among age groups. In Taiwan, snacks are commonly integrated into social

rituals such as ancestor worship, whereas in Japan, packaging aesthetics play a more prominent role in consumer choices. These insights indicate that brands need localized marketing strategies rather than a one-size-fits-all approach to global branding.

The role of packaging in purchase decisions

While packaging is an important factor, it is rarely the primary motivator for purchase decisions. Survey results show that taste remains the dominant reason for choosing Pringles, followed by brand loyalty and packaging design. This reinforces the idea that packaging serves as an enhancer rather than a sole driver of consumer preference.

However, packaging does have a direct impact on perceived product quality and usability. Consumers who appreciate the stackability and freshness preservation of the Pringles tube are more likely to view the brand positively. On the other hand, those who struggle with accessibility or perceive the packaging as wasteful may opt for alternative snack brands with more user-friendly or sustainable packaging.

Limitations and future research

Despite the comprehensive nature of this study, there are certain limitations that should be acknowledged. The survey was conducted primarily among Spanish-speaking participants, which, while providing valuable insights into one key market, may not fully represent global consumer sentiment. The study focused on self-reported preferences, which may not always align with actual purchase behaviours. The interviews, though valuable, were limited in number and may not be fully representative of broader cultural trends.

Future research could expand on these findings by: Conducting a longitudinal study to track changes in consumer attitudes toward packaging over time. Exploring the impact of sustainable packaging initiatives on consumer willingness to purchase premium snacks. Examining how price elasticity influences consumer choices in markets where Pringles competes with lower-cost alternatives. And finally, investigating the effectiveness of regionalized marketing strategies in enhancing consumer engagement.

Conclusion

This study provides an in-depth analysis of consumer perceptions and purchasing behaviours related to Pringles' distinctive tube packaging. The research checks that packaging plays a pivotal role in brand recognition and consumer appeal, yet it is not the sole determining factor in purchase decisions. Elements such as taste, price, accessibility, and sustainability concern also significantly influence consumer choices.

While packaging is a key element in shaping consumer perception, this study confirms that taste and brand loyalty remain the primary drivers of purchase decisions. Packaging should therefore be viewed as a complementary factor that enhances the overall product experience rather than as a standalone incentive for purchase. This insight suggests that, while improving packaging functionality is important, brands must continue focusing on core product attributes such as flavour innovation and competitive pricing to maintain consumer interest.

The findings reveal that Pringles' packaging is widely recognized and often perceived as a premium and practical option due to its stackability, resealable lid, and freshness preservation. However, consumer preferences vary by region and demographic factors, highlighting the need for localized marketing strategies. In some markets, such as Japan, aesthetic appeal and portion control are critical factors, whereas in Spain, price sensitivity plays a more dominant role in purchasing behaviour.

This study also highlights the importance of cultural differences in shaping consumer expectations. While Japanese consumers place a high value on aesthetic appeal and collectible packaging, Spanish consumers demonstrate a stronger sensitivity to price, prioritizing affordability over design. These findings emphasize the necessity of region-specific packaging and pricing strategies to maximize market penetration. For instance, brands could experiment with limited-edition packaging in Japan while focusing on cost-effective bulk packaging options in Spain.

Although the cylindrical tube format remains a distinctive and iconic feature, it also introduces usability challenges, particularly regarding the extraction of the last chips. This limitation could discourage repeated purchases among certain consumer groups. Additionally, the limited recyclability of the tube raises environmental concerns, emphasizing the need for brands to explore alternative materials, biodegradable solutions, or redesigns that maintain functionality while reducing environmental impact. Addressing these issues through packaging innovation could strengthen both consumer satisfaction and brand competitiveness. Consumers are becoming increasingly aware of environmental issues, and brands that adopt eco-friendly packaging solutions are more likely to gain a competitive edge in the evolving snack market.

The increasing consumer awareness of sustainability highlights an urgent need for packaging innovation in the snack industry. Brands that invest in recyclable or biodegradable materials—without compromising durability and product protection—are likely to gain a competitive advantage. Future developments in packaging should align with evolving regulatory

frameworks and growing consumer demand for environmentally responsible products. Additionally, companies could explore packaging reduction strategies, such as offering refillable containers or compostable alternatives, to minimize environmental impact and appeal to eco-conscious consumers.

A key usability concern identified in this study is the difficulty of extracting the last few chips from the Pringles tube, which some consumers find inconvenient. This limitation could discourage repeated purchases among certain consumer groups, particularly those who prioritize ease of access in their snack choices. Addressing this issue through design improvements—such as wider openings, resealable sections, or alternative dispensing mechanisms—could enhance user satisfaction and long-term brand loyalty. Moreover, the study underscores the impact of brand loyalty and consumer habits. Many respondents choose Pringles due to a combination of familiarity, taste preference, and perceived quality, but the frequency of purchase is lower compared to traditional potato chips. This suggests an opportunity for brands to explore pricing strategies, promotional campaigns, and product diversification to increase market penetration.

Given that Pringles is perceived as a premium snack rather than an everyday product, targeted marketing strategies—such as promotional pricing, bundle offers, or new packaging sizes—could encourage more frequent consumption. Additionally, introducing more diverse flavour options tailored to local preferences may further enhance brand engagement and expand market reach. For example, seasonal or region-specific Flavors could attract new consumer segments while reinforcing loyalty among existing customers.

Ultimately, this research highlights the complex interplay between packaging design, consumer expectations, and market trends. The future of snack packaging will likely be shaped by innovations in sustainability, accessibility, and user convenience. Brands that adapt to shifting consumer priorities—by integrating sustainable materials, ergonomic design improvements, and region-specific marketing approaches—will be better positioned to maintain relevance in an increasingly competitive landscape.

This study provides a strong foundation for future research on the role of packaging in consumer decision-making, and further investigations should explore broader international samples, long-term purchasing behaviours, and the economic impact of sustainable packaging adoption. By addressing these challenges, the snack industry can continue to evolve toward a more consumer-centric and environmentally responsible future. Future research should further explore the economic implications of sustainable

packaging adoption, assessing consumer willingness to pay for eco-friendly alternatives.

Declaration of Independence and Funding Statement

This research was conducted independently and without any involvement, sponsorship, or financial support from Pringles, its parent company, or any other snack brand. The study was designed and executed solely for academic purposes, with no external commercial influence affecting its methodology, analysis, or conclusions. Furthermore, no external funding was received for this research. All findings and interpretations presented in this paper are based on objective data collection and analysis, ensuring the integrity and neutrality of the research.

This manuscript was prepared with assistance from ChatGPT-4o (OpenAI, 2026). The AI tool was used for language refinement, translation, and structural improvement to enhance clarity and coherence. All conceptual and analytical content was developed by the authors, and the AI was not used for data analysis, hypothesis generation, or substantive conclusions. The final manuscript was reviewed and edited by the authors to ensure accuracy and originality.

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