

Breaking the mould:

The power of chaos packaging strategy in shaping brand positioning and product perception



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Summary

This project focused on exploring atypical packaging as a tool for brand positioning and product differentiation. Breaking the Mould was carried out as a collaboration between the home university (TU Delft) and the client company, Lamb Weston EMEA. The process consisted of three stages. The first stage centred on exploration and secondary research. This included market and brand analyses, as well as an extensive literature review on cues, categorisation, branding, and packaging. During this phase, field research was also conducted. I spoke with experts in manufacturing, supply chains, branding, and other internal departments. Additionally, I visited Lamb Weston's innovation centre and trial manufacturing line in Bergen op Zoom, as well as the Oerlemansplastic production facility in Giessen. The stage concluded with a small-scale, qualitative preliminary workshop to better understand consumers and their perceptions of the product category. In the second stage, I identified the main business and research opportunity: functional foods, specifically functional fries. The core of this stage was a primary research study in the form of a quantitative experiment, yielding over 310 responses. The data was analysed and conclusions were drawn, confirming most—but not all—of the hypotheses. Key findings included: typical packaging was rated as the most appealing; most comparisons between two bag formats (typical vs. moderately atypical) were non-significant; and the drum, the most atypical format, was harder to categorise correctly and scored significantly lower in appeal. However, atypical packaging performed strongly in attracting attention and transferring associations between product categories. The third stage concluded the project with practical managerial recommendations. Overall, the project delivered: a definition of “chaos packaging,” an assessment of its strategic viability, and actionable recommendations for Lamb Weston. The recommendations were to utilise the most atypical packaging in marketing campaigns, as it conveys to most associations and draws the most attention, but is not functionally viable. However, the second recommendation was about launching a new line extension (functional/healthy fries) and packaging them in a moderately atypical flat-bottom (standing) bag.

Brief

The original brief can be found in Appendix 10.6

I. INTRODUCTION



Chapter I Introduction

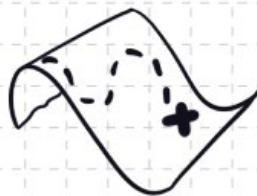
1.1 Welcome

Foreword

Welcome to my graduation project report (MSc in Strategic Product Design at TU Delft). This project took around 100 working days from June to December (1st) 2025. The document presents the project's journey, including research, argumentation, and design/branding propositions.

In this introduction section, I sketch out and visually map the project's context, scope, and the motivation behind it. The core subject of interest is 'non-traditional packaging' — AKA 'chaos packaging.' This project will investigate what it is, how it could be used, and how the project's client company can leverage it — Lamb Weston EMEA.

Throughout this report and research, I introduce different packaging, branding, etc., terminologies. Due to the multidisciplinary nature of this work (packaging, manufacturing, branding, psychology, etc.) some terms have multiple meanings depending on the context. To keep things clear, I try to provide working definitions through the text.



Introduction Roadmap

Roadmap

This journey is divided into 11 chapters, including the current one — introduction. The second chapter ("Packaging basics") is dedicated to the fundamentals of packaging. After all, it is impossible to speak about properties of packaging, differentiation, and non-traditional packaging if "standard"/traditional solutions are not known or understood. These basics cover

roles, properties, 'powers,' and systems of packaging, as well as a quick overview of relevant packaging types.

The third chapter presents the literature review. It is concerned with the interaction between customers, packaging, and branding. The existing theory on packaging cues, categorisation theory, customer response to newness, and jobs-to-be-done sheds light on how packaging influences customer perceptions and how a potential deviation could unfold. These are supplemented by the review of Keller's Customer-Based Brand Equity (CBBE) and Byron Sharp's brand strength theory. While 'chaos packaging' has not been really researched yet, there is some literature investigating the role of packaging format on product and brand perception. Some of the studies are comparing more to less traditional forms, and those are studied closer in the second last subchapter, "chaos packaging." Of course, the literature review subchapter is concluded with a summary and key takeaways.

The fourth chapter analyses Lamb Weston's brand and the overall market. This section includes LW's brand positioning and competition analysis. As well as market category research, brand's points of entry and attributes, category consumer behaviour, preliminary "scouting" survey, and overview of market developments. This brand and market analysis enables the contextualisation of the previous packaging and chaos packaging research.

In the fifth chapter, I combine insights from packaging basics, literature review, and market research to identify possible opportunities. Furthermore, following the ZAG differentiation guideline, the chapter explores consumer trends and profiles to further contextualise the uncovered opportunity.

In consecutive chapters, I document the process of developing and conducting primary research. I create the argumentation and a conceptual framework based on the secondary research findings. The chapter includes information on the set-up, pre-test and main experiment design. As well as the data gathering analysis results and results. Finally, in chapter 9, I assess the strategy and highlight the benefits, risks and the overall value it poses to Lamb Weston. Chapters 10 and 11 are the appendix and list of references.





Introduction **Lamb Weston**

1.2 Lamb Weston

Lamb Weston (LW) is one of the largest manufacturers of frozen potato products, especially fries, in the world and the leader in North America with over 40% market share (Morningstar, 2025). I am collaborating with LW EMEA – a team managing Europe, the Middle East, and Africa, based in Breda, Netherlands.

History

From the Dutch perspective, today's Lamb Weston can trace their roots back to Cees Meijer Sr., who in 1920 established his potato farm — Meijer Frozen Foods, in Zeeland (Lamb Weston EMEA, n.d.). From an American perspective, Gilbert Lamb formed the company in 1950 in Weston, Oregon. In 1960, LW invented the “water knife” (more about manufacturing in chapter 3) cutting technique, which enabled fry manufacturing on an industrial scale and quickly became the industry standard. In 1994, the two establishments merged through a joint venture, forming Lamb Weston/Meijer (LW/M). The company kept expanding and in 2016 became public and was listed on the NYSE. Eventually, LW bought out the remaining Meijer interest and became the Lamb Weston we know today.

Operations

The main products LW offers are frozen fries that can differ in sizes, shapes, seasoning, and texture (discussed further in chapters 3 and 5). The two primary raw materials are potatoes and edible oils. While the company does not technically grow the potatoes, LW has established long-term “grower relationships.” Depending on the production needs, LW purchases more produce from short-term annual contractors (Lamb Weston Holdings, Inc., 2025). As of May 2024, LW operates in 33 countries, with thousands of employees worldwide. The company has partnered farms, offices, and a total of 27 production plants in the US, Canada, China, Australia, Mexico, Japan, Argentina, the UAE and the EU (4 plants in the Netherlands, 1 in the UK, and 1 in Austria).

Lamb Weston differentiates between two main revenue streams – Out-Of-Home (OOH) and At-Retail (AR). Although LW does not publicise data differentiating between the two streams, historically, the company has been OOH-oriented. That sector consists of different dine-in and take-away businesses. The most prominent subsegment is QSR (Quick Service Restaurants), which includes fast food chains. However, this project is focused on the alternative stream – At-Retail.

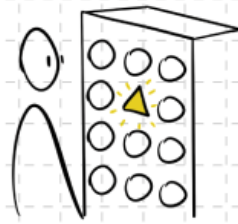
Retail brings many advantages to the firm. First of all, it utilises already existing manufacturing capabilities; not entering the retail market would be a missed opportunity. The side effect of shelf

presence is building brand awareness and strength, which in turn can reinforce the OOH market position. Secondly, AR enables consumers to own and prepare the product at their home at any time, meeting different demands and consumer needs than fries offered through OOH. Thirdly, AR's profit margins are larger in comparison to OOH. However, the volume sold is much smaller. At last but not least, having two revenue streams is a form of diversification, leading to stronger financial resilience. By building up the retail stream, LW does not only increase their sales and profits but also make the firm less vulnerable to external factors, e.g. a client's underperformance.

Performance

According to LW's annual statement from 2024, in that fiscal year, the company's sales increased by 21% to \$6467 million (Lamb Weston Holdings, Inc., 2024). However, according to the same report, the volume sold has generally decreased. This seemingly contradictory data can be explained with changes to the portfolio, LW dropped some less profitable product lines, an increase in the price/mix, and internal reorganisation. In recent years, LW redefined their regions of operations into two groups – North America and International.

In the second half of 2024, LW's stock value drastically dropped due to multiple factors, including a decrease in McDonald's sales (Meyersohn, 2024). Large fast-food chains constitute a significant portion of LW's sales. McDonald's alone constituted 14% of all sales in 2024 (Lamb Weston Holdings, Inc., 2024). Currently, the overall stock value performance is in poor shape. The company achieved its \$115 peak in June 2023, and it dropped to \$60 in January 2025 (NYSE, n.d.). As a result, the company has recently undergone reorganisation and welcomed a new CEO, Mike Smyth, in January 2025.



Introduction

Chaos packaging

1.3 Chaos packaging

This entire project was inspired by atypical packaging forms. My initial question was — what are the benefits of “radically” innovative and creative packaging that seems to be out of place? An example of such design is OFFFF studio’s Williams Premium Canned Cocktails or Potts’ sauces in (soda/beer) cans (Figure 1). At the time, I was not aware of ‘chaos packaging.’ The concept was revealed to me, soon before the project’s start, by Alexander Haberlin, a co-founder of No Normal Coffee.



Figure 1 Potts’ cooking sauce, and Williams canned negroni drink. Accessed via pottspartnerhip.co.uk and offff.studio.

‘Chaos packaging’ (CP) is a non-academic term spotted and named by Michael Mirafior (LinkedIn post featured in figure 2) in April 2024. The alternative, or at least the closest related, academic term is ‘non-traditional’ packaging (Orlowski et al., 2022). Mirafior (2024) describes it as:

Leveraging interesting, novel, sometimes confusing but mostly delightful unexpected packaging to create just enough cognitive dissonance to break through and get consumer attention.

This relatively loose explanation effectively guides this research towards the topics of delight (likability/product evaluation), surprise/uniqueness, novelty, customer confusion, and attention-grabbing. These topics are explored in the literature review section (Chapter 3).

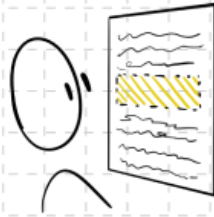
Miraflor’s trend spotting was given wider exposure via The Wall Street Journal (Deighton, 2024) article that lists the following examples of CP: Flo (menstrual health) in ice cream tubs, Engine gin (liquor) in engine oil canisters, Fresh Couture Moschino (perfume) in window cleaner spray bottles, Liquid Death (drinking water) in beer cans and barrels, and Graza (olive oil) in squeezable bottles (figures 3). Interestingly, already in the article, the author comes across the issue of consumer confusion. WSJ quotes Susan Augusting, co-founder of Flo (tampons in a tub), that the customers would sometimes put the product in the freezer. This is a foreshadowing of later investigated categorisation and so-called ‘moments of truth.’ Additionally, the article draws attention to organisational chokepoints concerning adaptation of CP — “startups generally have more leeway when it comes to packaging innovation than established companies” (Deighton, 2024). This challenge is also looked into in the literature review (3.4 > Innovation topography and terminology).



Figure 2 One of the first, if not the very first, mentions of chaos packaging. Accessed via LinkedIn (Miraflor, 2024)



Figure 3 Examples of chaos packaging, according to Michael Miraflor (2024) and Deighton, 2024; Images accessed via target.com, amazon.com, basecampfood.com, fragrantica.com, gall.nl, and liquiddeath.com.



Introduction

Research definition

1.4 Research definition

Research gap

While product differentiation through unique product design is nothing new, chaos packaging, as a new means to achieve the result, has just recently emerged. As a result, there is virtually no explicit research exclusively investigating the phenomenon, yet. Traditionally, packaging research is focused on individual design elements, especially 2D ones, e.g. label design, graphics (Gunaratne et al., 2019), branding communication, and other visual attributes. Structural packaging qualities, including materials (Lindh et al., 2015), shapes (Poslon et al., 2021), and textures, have also been explored, but in the same, isolated product category, e.g. how people react to a wine bottle with a long neck versus wine bottles with short necks. Even though such research is not directly related to chaos packaging, this project takes it into account because it sets the fundamentals of packaging psychology and branding. Fortunately, two papers about or adjacent to ‘non-traditional’ (wine) packaging were published in recent years (Orlowski et al., 2022; Nesselhauf et al., 2017). These two papers heavily influence the direction of my projects as they shed light on consumers’ acceptance and willingness to pay for such ‘non-traditional’ products. While the two works laid the groundwork for chaos packaging research, they do not take product differentiation/distinctiveness into account. It is a missed opportunity because a lot of research points out how competitive FMCG market/shelves are (Schoormans & Robben, 1997), and because grabbing attention in the overwhelming crowd of products is the point of ‘non-traditional packaging’ in the first place. It is also important to highlight that both papers were dedicated to the wine category, which is “high involvement.” It is important because both papers suggest that the research results could be different for low-involvement products, like frozen fries. Specifically, Nesselhauf et al. (2017) state that “low-involvement consumers react positively to additional information about the benefits of a new packaging,” meaning that there is a reasonable opportunity for a potential packaging innovation in the frozen potato fries’ market.

Long story short, no chaos packaging strategy research has yet been conducted, and until now, the term has been underdefined. Secondly, ‘non-traditional’ packaging research is of critical value but is sparse and lacks the marketing and branding context. Thirdly, no research was done on low-involvement FMCG products with respect to ‘non-traditional’ packaging. Finally, most of the structural packaging research completely misses the influence of cross-category packaging forms and their potential influence on customer perception via “borrowed” associations. This lack of contextualization leads to two last issues: it is not known whether and how associations are transferred between the categories, and secondly, how valuable is the attention-grabbing property of the strategy.

Research objectives and questions

This project addresses the gap in the literature by investigating consumer perceptions related to packaging forms (types/formats) — such as beverages sold in milk cartons versus cans — and their role in product and brand positioning. Focusing specifically on Lamb Weston’s B2C retail potato products, this research aims to leverage packaging formats strategically to strengthen brand positioning and potentially alter consumer perceptions within the potato product category.

This project builds on the rich and deep foundations of existing academic literature. It is also inspired by commercial initiatives that serve as bad, good, and eye-opening examples. The two core roles of packaging, as explored in the next chapter, are functionality and communication. Chaos packaging is no exception to the rule. However, CP inherently creates disruption in the context of a shelf or consumers’ mental models in communication. The question is whether it is beneficial for the brand or not. The two primary opportunities are attention-grabbing and less obvious, category attribute “borrowing” (explored in chapter 3). The expected risk of CP is potential consumer confusion, leading to poor product evaluations or even complete disregard.

The overarching goal is to assess the feasibility of chaos packaging and understand how to leverage its potential. Therefore, chapters 2 and 3 delve into the functions of packaging within the industry — what it entails, why it matters, and how it operates. Throughout this project, I aim to uncover and comprehend the principles of packaging, which will determine the feasibility, viability, and desirability of chaos packaging. These principles also serve as benchmarks and potentially as a barrier to entry for Lamb Weston, enabling them to achieve distinctive brand positioning.

Contribution

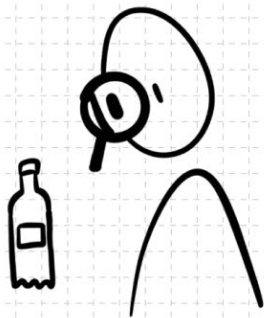
This project contributes to marketing and design literature in three major ways. First of all, this research formally introduces the phenomenon of chaos packaging and links it to existing literature on consumer psychology, branding, packaging, and specifically the concept of ‘non-traditional’ packaging. I formalise what constitutes chaos packaging — it is not a random creative means of creating disruption, but a strategic tool that takes plays into consumers’ mental models and held associations. After all, chaos packaging relies on borrowing existing packaging forms, including the associations consumers hold about them, and introducing those forms into new product categories.

Secondly, this project investigates the interaction between the degree of atypicality and product category recognition (R1). Previous research on non-traditional packaging explicitly communicated the product category to its experimental subjects. Hence, ignoring the fact that consumers might be confused by packaging and mistake a product for another category.

The third major contribution is the exploration of the attribute and association “borrowing” capability of the strategy. Previous research on structural packaging has often focused on design elements (height, colour, shapes, etc.) of a particular product category packaging (e.g. various containers for coffee, or bottles of wine). Alternatively, research was dedicated to a specific product quality and its perception, e.g., the sustainability of different packaging forms.

In other respects, this project considers the findings and translates them into actionable recommendations for Lamb Weston and the potential for further research for academia.

II. PACKAGING BASICS



Chapter II Packaging basics

Note for the reader: Readers who are well familiar with packaging and FMCG industry can skip to the summary subchapter or even directly to the third chapter, “Literature review.”

2.1 Packaging as a system

If we have a better look at a classic PET Coca-Cola bottle, we can already notice different coexisting elements. First of all, we have the liquid product and a packaging containing it — a function. The bottle’s design makes drinking easy, too — a second functionality. The packaging consists of two rigid elements – the bottle/vessel and the screw cap. In the EU, the cap and the bottle are linked with a tether. While the tether is not mandated directly, the SUP directive states that manufacturers must “fulfil specific product design requirements that significantly reduce [caps’] the dispersal” (European Parliament and the Council, 2019). Around the bottle is wrapped a label with the brand name, ingredient list (also regulated), and other information. The bottle was probably placed on the shelf close to other soft drinks competing for consumers’ choice... This is only a fragment of the product’s life cycle, completely omitting manufacturing, filling, logistics, disposal, and potential recycling.

The point being, packaging is always a part of a greater system and goes through different environments and serves different purposes. This subchapter explores this macrocosm as any packaging innovation is subject to its bounds.

Packaging definition

Since we are exposed to them daily, we intuitively know what packaging means. However, the scope of packaging and its multiple roles might come as a surprise to some. In language, packaging can have multiple meanings, depending on context. Cambridge Dictionary provides a range of definitions for packaging in different contexts. The basic one is “the materials in which objects are wrapped before being sold”, which is neither wide enough to cover unwrappable objects nor narrow enough to pinpoint the key function in sales. The two following definitions “the process of putting products into containers so that they can be sold or sent somewhere” and “the process of showing or describing something or someone in a way that makes it or them seem more attractive,” combined give us a better idea of what packaging entails (*Packaging*, 2025), while showcasing how broad and complex the term is. Lastly, the European Parliament and Council’s (1994) directive 94/62/EC provides the following definition:

Packaging shall mean all products made of any materials of any nature to be used for the containment, protection, handling, delivery and presentation of goods, from raw materials to processed goods, from the producer to the user or the consumer. Non-returnable items used for the same purposes shall also be considered to constitute packaging.

As a result, we see the complexity of packaging and how it plays multiple roles and functions. Firstly, packaging contains goods to facilitate protection, logistics, and sales. Secondly, packaging is a communication tool. It describes the contents and pitches them to a potential buyer and/or consumer. Hence, we can generalise these roles into two basic classes – functional and communicative roles, which should be seen as a system.

Fast Moving Consumer Goods industry

All goods can be classified as either durable or nondurable, and packaging, directly or indirectly, plays a role for all of them. Durable goods, or durables, can be defined as “those whose expected lifetime is greater than three years” (Durable Goods Definition, n.d.). Consequently, nondurable goods are those that “are purchased for immediate or almost immediate consumption and have a life span ranging from minutes to three years” (*Consumer Goods Definition*, n.d.). These nondurable goods include products like cosmetics, food, and clothing. However, this project is primarily focused on consumables, especially foods, specifically in the context of Lamb Weston — frozen potato fries and their packaging. As a result, the general context considered in this project is the ‘Fast Moving Consumer Goods’ (FMCG) industry. The term FMCG is practically interchangeable with ‘Consumer Packaged Goods’ (CPG) and can be defined as “products that sell quickly at relatively low cost” (Kenton, 2025).

Proper analysis and description of packaging and its functions are discussed further in this chapter. Nonetheless, one could argue that all FMCGs are packaged in one way and time or another. On the most fundamental level, packaging facilitates the core capacity of “quick sale” and “fast movement” — functionality. Since packaging is integral to the market, it comes as no surprise that Points of Sale (PoS), such as super/hyper-markets, convenience, corner stores, and farm markets, etc., are saturated with countless packaging options that compete for customers’ choice, foreshadowing the second key packaging role — communication.

In 2024, the food industry was estimated to generate almost \$900bn globally (“Global Food Market Statista,” n.d.) and \$57bn just in the Netherlands (*Dutch Food Market Statista*, n.d.). Meanwhile, Dutch consumers, aged 18 and older, eat overwhelmingly at home i.e. dinners and breakfasts 6 times at home a week, and lunch 4.8 times a week (*Consumentenonderzoek*, 2024). Meaning, that the substantial majority of the market constitutes FMCG food products every day.

PSS

A product service system is an alternative model to the traditional way of selling just a product. Van Halen et al. (2005) define PSS as “a marketable set of products and services capable of jointly fulfilling a user’s needs.” A similar term is PaaS — product as a service, which is somewhat narrower in meaning and focuses on delivering the product’s function or outcomes (service) instead of the product itself.

PSS was further developed and applied to the CPG industry by Olsson and Larsson (2009), who called their version “Packaging/Product Service System”. The approach comprehensively lays out the complexity of packaging and contextualises it in the greater macrocosm of its life cycle,

stakeholders, and time. Most importantly, the authors make a strong case that packaging should be considered as a system. Some of the arguments refer to the European definition of packaging, which highlights different types of packaging, as well as their roles and interactions, further explored in the next subchapter. Notably, just the fact that the European legal lexicon includes a detailed definition is an argument that packaging exists even on the regulatory plane, adding yet another level to the system. That level cannot be ignored because it might lead to the very end of a product line or of the entire brand, e.g. Voodoo Monkey, which was banned by the government because the product's packaging (vodka in a pouch) was associated by the society with products for children. The other parts of the system are the communication, usability, logistics, and their respective efficiency. All these combined are part of the greater product life cycle, hence affecting the product's sustainability. Based on the premise that packaging constitutes a system, Olsson and Larsson (2009) highlight two core ideas—firstly, that consumers experience more than one “moment of truth.” Secondly, that the packaging is the central value carrier in PSS.



Figure 3 Voodoo Monkey, an alcoholic drink in a pouch; accessed via avandi-groothandel.com

The concept of ‘moments of truth,’ also known as MOT, is nothing new in marketing, especially in the context of services. It can be traced back to Jan Carlzon and his book, republished in 1989. Carlzon used to be the CEO of the Swedish airline SAS between 1981 and 1994. To him, MOT essentially meant any touchpoint between the customer and the provided service, and he describes the concept in the following manner:

[...] the first 15-second encounter between a passenger and the frontline people, from ticket agent to flight attendant, sets the tone of the entire company in the mind of the customer.

[...] Last year, each of our 10 million customers came in contact with approximately five SAS employees, and this contact lasted an average of 15 seconds each time. Thus, SAS is "created" 50 million times a year, 15 seconds at a time. These 50 million "moments of truth" are the

moments that ultimately determine whether SAS will succeed or fail as a company. They are the moments when we must prove to our customers that SAS is their best alternative. (Carlzon, 1989).

While the idea of brand and service touchpoints is trivial to at least contemporary designers, the premise that products are experienced and evaluated over time, at different moments, is often omitted in FMCG industry and research. Instead, packaging is often deemed a “silent salesman” (Rod, 1990) — focusing only on the first MOT and ignoring all the rest. In 2005, Löfgren (2005) pointed it out and argued that CPGs have at least two moments of truth — meaning that the product and its packaging are evaluated at two occasions. The first one is at the time of purchase. At the time, the packaging’s role is to obtain customers’ attention and communicate the benefits of an offer (Löfgren, 2005). This stage is also called ‘stopping’ and ‘holding power,’ further explored in the next subchapter under the “Packaging powers” section. The second MOT Löfgren (2005) describes as “providing the tools the customer needs to experience these benefits when using the product” — the service element offered by the packaging after the purchase, linking the concept back to PSS and the idea that packaging is the central value carrier in the system (Olsson and Larsson, 2009).

Since packaging has multiple moments of truth, both from a branding and product perspective, is the central value carrier, and adds additional value to the product (functional and user/experience-centred features), it comes as no surprise that Olsson and Larsson (2009) argue for incorporating packaging design into the product development process. In that way, the product-packaging value can be optimised and fully leveraged for the firm’s and consumer’s advantage. A great, contemporary, and unique example is No Normal — an outdoors coffee brand that packages its product in the form of “dehydrated coffee extract” (No Normal, 2024), in aluminium tubes. According to their co-founder, the firm developed both their product and packaging simultaneously, in-house. The result is most definitely distinctive — how many coffee brands are sold in tubes, viable — the packaging fits the primum product, and desirable — not only is the coffee of high quality, but the packaging is relatively lightweight, sealable, easy to portion, convenient, and fits in the outdoor sport backpack. Therefore, while it might be strange to package coffee in a tube resembling tomato concentrate paste or acrylic paint, it still appears reasonable and enjoyable to the consumers, at least once they realise they’re looking at coffee.



Figure 4 No Normal coffee; Accessed via www.nonormal.com

2.2 Roles of packaging in FMCG

Functional roles of packaging

As stated before, packaging has various roles, but most importantly, it enables goods to be moved, stored, protected, sold, and in some cases, used or consumed. The last capacity is one of the differentiating elements between durables and FMCGs. For example, the packaging the TV arrived at home in is irrelevant to the product's function. Meanwhile, the can that Coke was bought in can serve as a drinking vessel — packaging being integral to the consumption process.

Content protection: The first and foremost functional property is content protection, and it is no small feat. For example, a carton of ultra-high temperature processed milk can remain fresh between 6 and 9 months in room temperature if unopened (milkandmore.co.uk, 2025). After being opened, the very same milk needs to be kept chilled and remains fresh for around a week. Of course, not every packaging and treatment is capable of expanding the shelf life this much. This capability depends on the deployed materials and their barrier properties.

Packaging materials can be categorised as either rigid or flexible. Materials like glass, cardboard, metals, and hard plastics fall into the rigid group. Examples of flexible materials include paper, plastics and plastic foils (LDPE, LLDPE, HDPE, PP, PS, PVC, PET), aluminium foil, and their combinations (Selke, 2015). However, it is worth noting that plastics like PET could also be classified as semirigid or rigid (“Microbes and Microbial Biotechnology for Green Remediation,” 2022), depending on their manufacturing and the end result. Moreover, flexible and rigid materials can be deployed together, e.g. through laminations and coatings. For example, Tetra Pak carton packaging comes with five distinct layers. The outermost layer is a polymer layer that

protects the package and printed design from moisture. The paperboard layer provides rigidity. A second layer of polymer acts as an adhesive between the paper and the fourth layer – aluminium, which protects the contents from light and oxygen. The very last layer is again made of polymers, protecting the package from the product itself (Tetra Pak, n.d.) The Tetra Pak case exposes yet another packaging classification — mono- and multi-material packaging, with the latter usually being multi-layered. However, further investigation of the materials used would be out of scope in relation to this project. The important lesson is that different materials and their combination contribute to the structural qualities and barrier properties. These properties include protection from punctures and other physical damage, gas/oxygen, moisture, light, and microbes (Praxis Packaging Solutions, 2024).

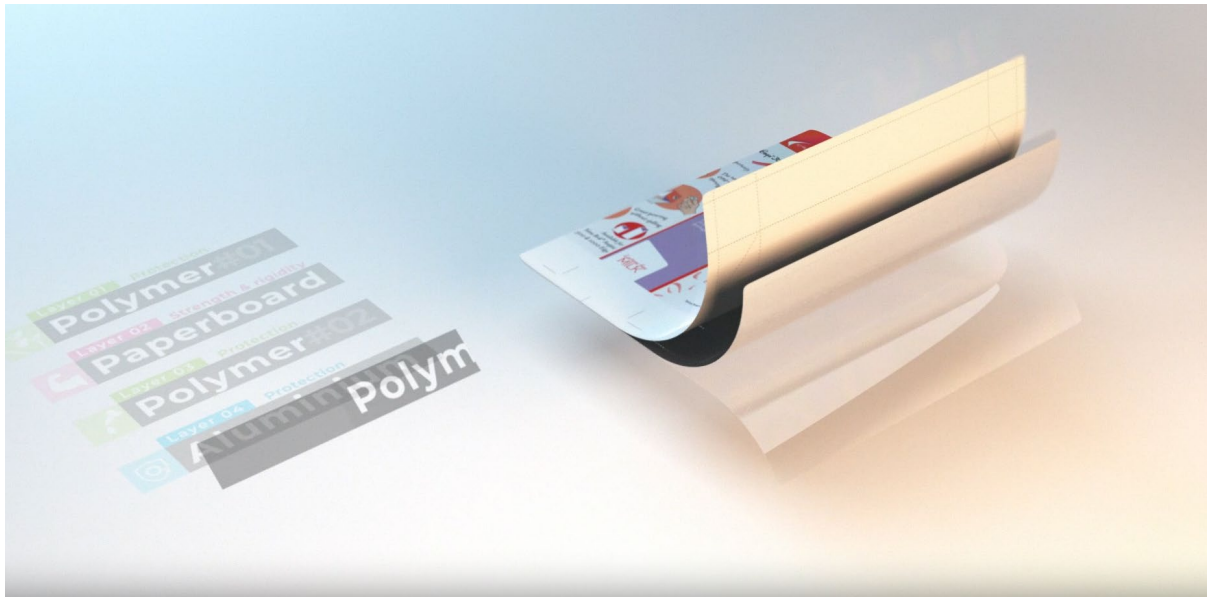


Figure 5 video about structural carton design (Tetra Pak, n.d.) [Link to the video.](#)

Logistics: The containment and protective qualities of packaging enable goods to be moved along the supply chain. In relation to logistics, three main types of packaging emerge: primary, secondary, and tertiary (Figure 6). Primary packaging is the most familiar to consumers, and consequently, is this project’s focus subject. Primary packaging contains the product directly and “defines its smallest unit of sale” (“Storage Packaging Types,” 2024), AKA ‘consumer unit,’ e.g., bottles, cans, paper bags for flour. The main role of secondary packaging is to bundle and group products in primary packaging, so their transport, storage, and handling are easier. Some products are sold in secondary packaging, e.g., six packs of beverages. Tertiary packaging is the least familiar to customers. This largest type of packaging is used in transport and warehouse storage. Its role is to move products in large, bulk quantities. Of course, the logic continues, and one could claim that containers on container ships are yet another packaging type, but that goes beyond the scope of relevance to either FMCG primary packaging innovation or Lamb Weston and their local manufacturing.

One of the most common tertiary packaging platforms is a pallet — “a flat transport structure, which supports goods in a stable fashion while being lifted by a forklift, a pallet jack, a front loader, a jacking device, or an erect crane” (Wikipedia contributors, 2025). Pallets are reusable, usually made of wood, capable of supporting up to 1500 kg of load, and highly standardised. For example, a EUR-pallet has regulated dimensions of 800 mm × 1,200 mm × 144 mm. This standardisation

enables the industry to develop and use standardised equipment, as well as the very movement and ownership of the pallets, as they can be exchanged on a "pallet for pallet" basis. While tertiary packaging is outside of the scope of this project, the design of primary and secondary packaging must take it into account. Good packaging not only protects the contents well but also facilitates optimal space usage and movement of as many products as possible, too.

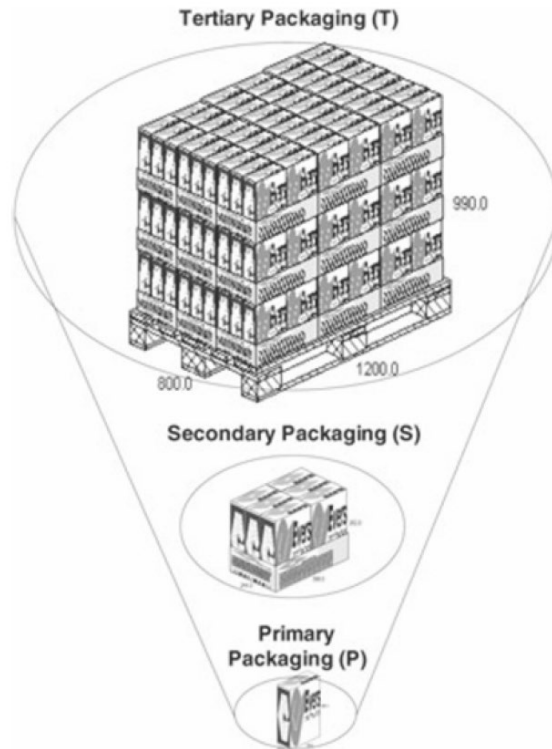


Figure 6 Different levels of a packaging system (Saghir 2004) accessed through Olsson & Larsson (2009)

Purchase, usage and consumption: As mentioned before, packaging enables the product to be moved across the supply chain to its destination, where it is used and/or consumed. Firstly, from the buyer’s perspective, packaging defines a unit of sale. Meaning that the customers are enabled to choose and take ownership of the products. Additionally, they can usually choose from a range of unit sizes or ‘formats’, e.g., 1, 1.5 or 2 litre milk cartons. This function can be called ‘portioning’ and has an influence on product positioning, as well as an impact (either positive or negative) on consumption behaviour, e.g., food waste (Doğdu et al., 2023; Brennan et al., 2020) or overconsumption (Chu et al., 2024). Packaging formats have another implication for the retail space. The product dimensions are a constraint that needs to be considered in the context of physical shops. For example, an “innovative” bag of fries that is twice as tall as a standard one will not fit on the original shelf. Such a challenge could be resolved, but it would require good argumentation, additional costs, and effort for both the retailer and the product company.

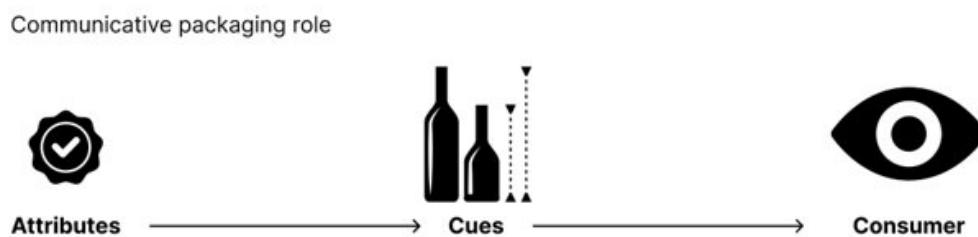
The last mile, between the point of sale and the place of consumption, is often undertaken by the customer themselves. Packaging structure design plays a role in the experience. One can ask whether the packaging fits in a shopping bag, how much it weighs, or if it provides additional features helping its handling (e.g. a handle for 5L water bottles). Furthermore, some products can be consumed either in one go or over time. Therefore, life span and storage convenience are

also important factors. Features like re-sealability might be valued more for some products, like milk, but less for others, e.g., oranges in a mesh net.

Communicative roles of packaging

A pig in a poke: As Löfgren (2005) stated, packaging plays a vital role in communicating information about the product inside. It is a critical property, as by definition, the absolute majority of CPGs are protected by functional barriers of packaging, meaning that potential consumers do not have the chance to look at, and can not try/test/taste, the product prior to the purchase. As a result, these customers must make their purchase decisions based on the available information, usually found on the packaging. Of course, there is a risk of the communication failing or even being false and deceptive — a pig in a poke. However, such a scenario is disastrous for a brand that aims to sustain its sales. First of all, Bredahl (2003) has shown that past product experience is immensely impactful on future purchases — why would you buy (again) a product that you already tried and disliked? Secondly, Danner et al. (2017) have highlighted that not meeting set expectations made consumers feel significantly more intense negative emotion — disliking the product much more than they would if the expectations were low but “true.”

Introduction to cues: It is important to have a good overall understanding of what cues are, how they can be classified, and why. Firstly, a needed clarification — across many research papers, “cues,” “attributes,” and other terms are used interchangeably, or with slightly different meanings. Following Cambridge Dictionary logic (Cue, 2025), I consider a cue to be a signal for someone to interpret a product in a certain way. Thus, a cue is a means of communicating the product’s property — the attribute.



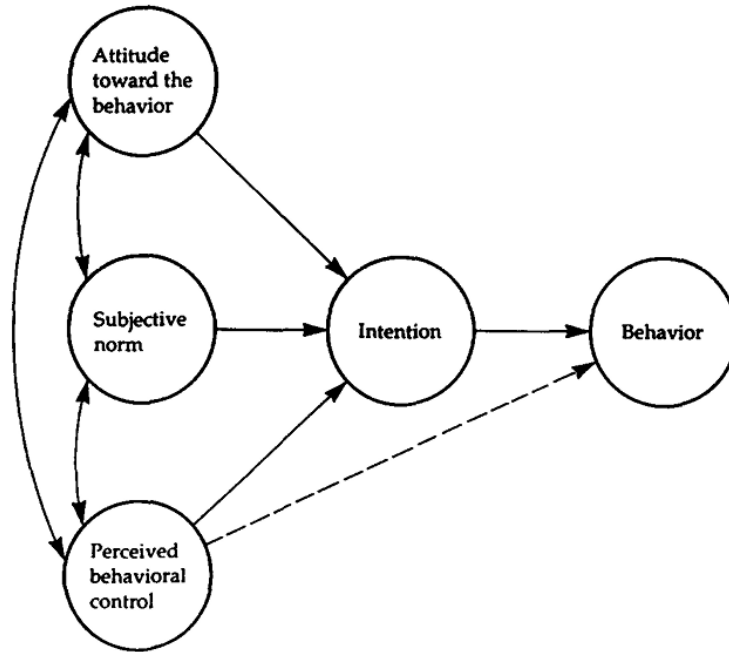


Figure 7 Theory of planned behaviour; Accessed via Ajzen (1991)

Customers who want, need, or are encouraged to make a purchase base their decision behaviour, on the perceived information. Ajzen’s (1991) planned behaviour (figure 7) essentially states that people take certain action, e.g. purchase fries, if they both want to (degree of intention) and feel able to (how easy or hard it is to achieve) do so. In the context of fries and their packaging, the communicated cues mostly affect the ‘attitude’ factor. For example, consumers might believe that the consumption experience of the product will be convenient, tasty, quick to prepare, cheap, crunchy, etc. On the other hand, ‘perceived behavioural control’ is also assessed in reference to cues. For example, is the product available in the supermarket, and can the customer find it quickly, directly correlating this theory to the concept of ‘physical availability’ (Romaniuk & Sharp, 2021) discussed in chapter 3. In such a case, the product’s distinctive colours and shapes assist the customer in recognising and finding it. Furthermore, cues can also communicate other products’ properties like flavours or the preparation method, e.g. a symbol or an image of an air fryer indicates how the product is meant to be prepared. Such a cue would affect the customer’s perceived behavioural control and, if considered positive and more “able,” then nudge them towards a behaviour, or if considered difficult to accomplish, i.e. the customer does not have an air fryer, then dishearten them from the purchase. This journey is well depicted by Steenis et al.’s (2017) model (Figure 8).

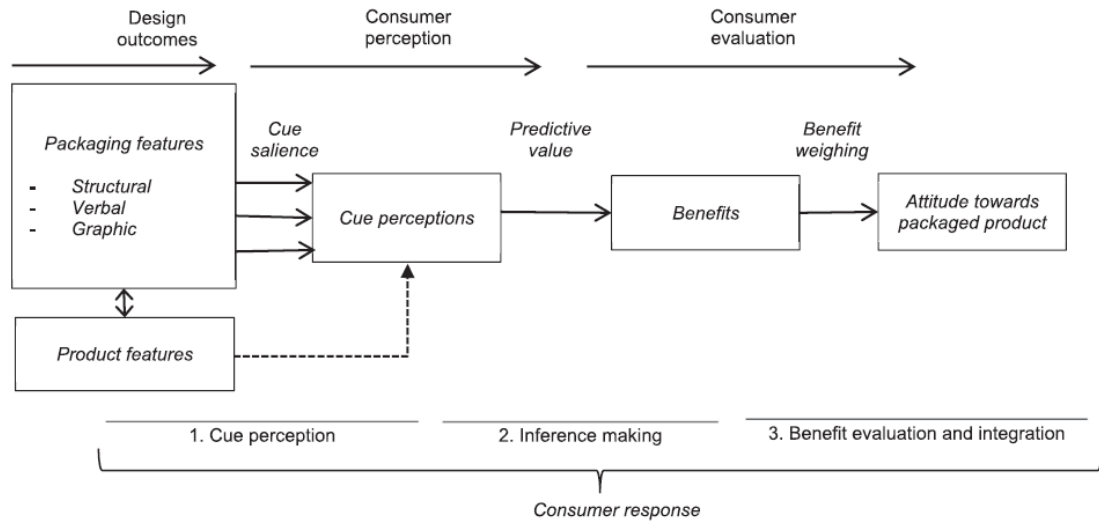
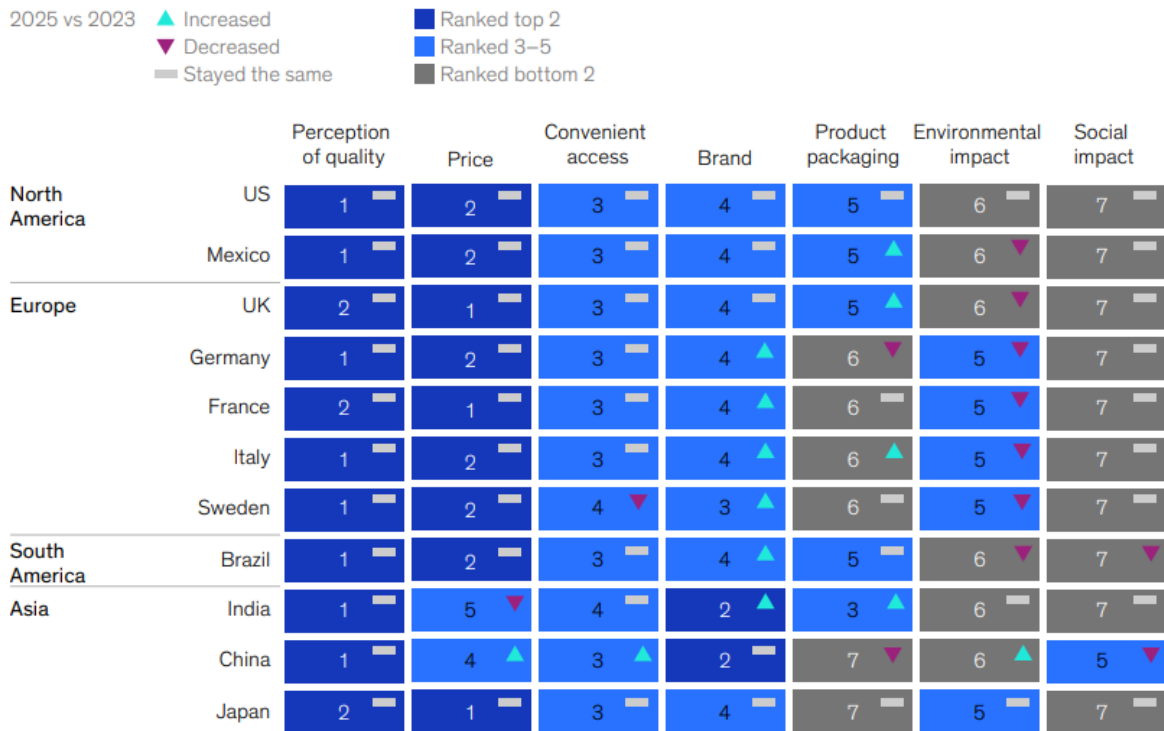


Figure 8 Model of attitude building towards packaged products; Accessed via Steenis et al. (2017)

These processes are very quick and often subconscious. After all, most customers consider grocery shopping a chore that is meant to be dealt with as quickly as possible (Romaniuk, 2018). Nonetheless, even if the customer does not engage in product evaluation and defaults to a routine product choice, they still need to find the product in the shopping environment. In either case, people will look for pieces of information and assess shapes, colours, claims, brands, labels, packaging materials, displayed or illustrated products, etc., to choose the right product. The hierarchy of a product's attributes is not universal to any group, culture, or product, but there are some examples and trends. Koutsimanis et al. (2012) assessed what attributes American consumers value most in fresh produce, i.e. sweet cherries. Price, shelf life ("best by"), and container size were, respectively the most important qualities in the eyes of consumers. This correlates well with a recent McKinsey (2025) report measuring, among other things, the top product characteristics. For all Western countries, the most important attributes were quality and price, too.

Importance of product characteristics in purchasing decisions,¹ ranked 1 through 7



¹Question: Which of the following characteristics play an important role in your decision to purchase? Results derived from ranking (from highest to lowest) the share of respondents who indicated "extremely important" or "very important" for each characteristic. Source: McKinsey Packaging Survey, March 2025 (n = 11,136)

Figure 9 Importance of product characteristics in purchasing decisions; Performed by and accessed via McKinsey report (2025) - Sustainability in packaging 2025: Inside the minds of global consumers.

Cues can be categorised in three ways, depending on the chosen approach. The first approach, subject-oriented, is concerned with whether the evaluated cues are inherent to the product itself or not. Those which are inherent to the product are called ‘intrinsic cues.’ Examples of those cues in a branded beef study (Bredahl, 2003) were share of fat, fat marbling, meat colour, meat juice, and trimming. Examples of extrinsic cues, which are those not native to the product itself, from the same study, were information leaflet, promotion boards, information scanner, recipes, cardboard tray, product label, price, brand name, and package sleeve. Price is an interesting cue because it is simultaneously an attribute. In certain circumstances, price can play the role of a cue suggesting the quality of the product — an expensive piece of meat might be perceived as better in quality than a cheap one.

The second approach to classifying cues is agent-oriented and asks which experience the cue. There are two classes of cues (Piqueras-Fizman & Spence, 2014) — either exteroceptive or interoceptive. Exteroceptive cues are those experienced with “external” senses, e.g. vision, hearing, and touch — these are usually experienced prior to consumption. However, hearing, i.e. listening to the food that is being consumed, could be classified as an interoceptive cue. Interoceptive cues are observed “internally” and during the consumption, e.g. taste, smell, mouthfeel. Needless to say, for some products one class of cues might be relevant than others, but in the context of food, both are important, especially considering the context of different moments of truth.

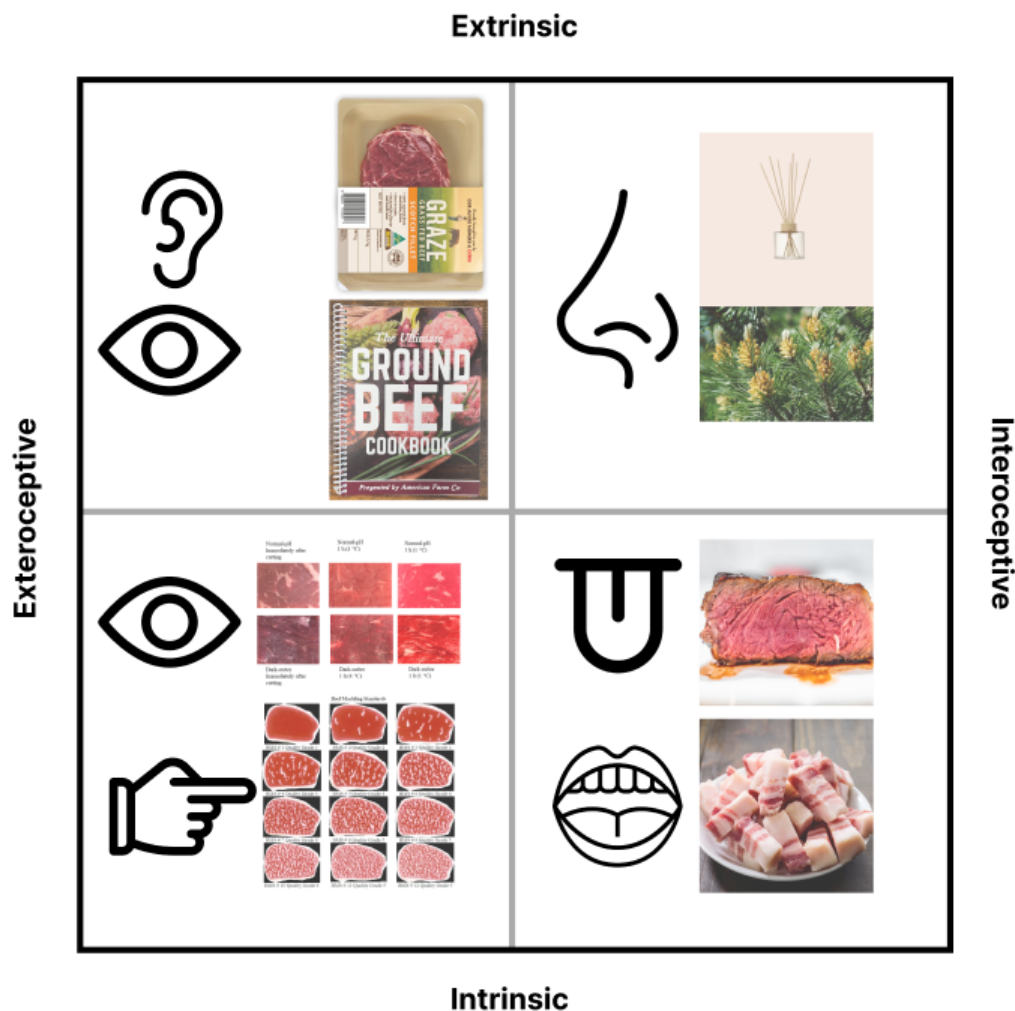
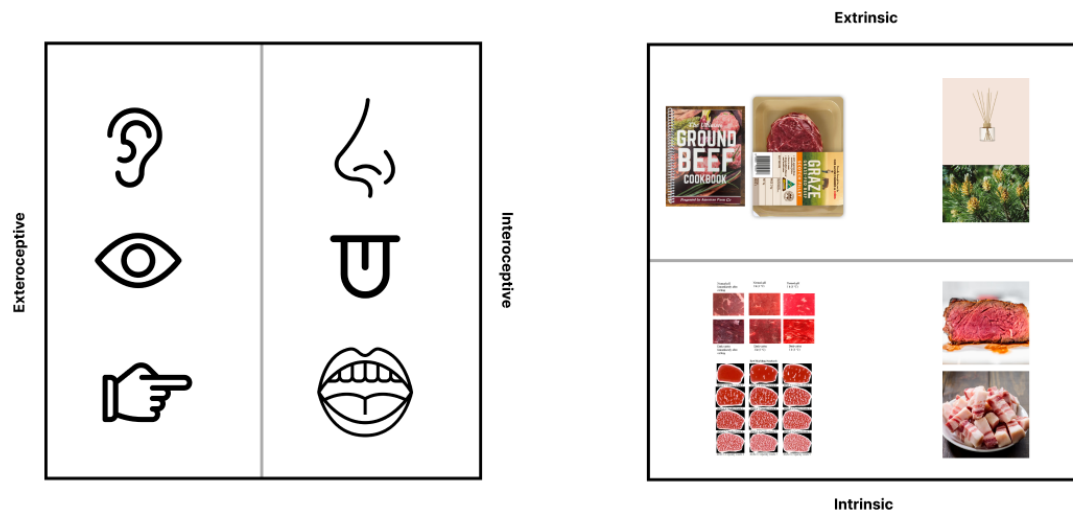


Figure 10 Diagram mapping types of cues (with examples) of branded beef

In their research, Granato et al. (2021) focus on another category of cue types. The cues the researchers were concerned with were either implicit or explicit — a “message-oriented” approach. According to the authors, explicit cues are those cues that are direct, usually on-

packaging, verbal (either written or spoken) or informational signals of the intended communicated product quality. The research conducted by Granato et al. (2021) investigated the effects of the cues on communicating sustainability. Examples of explicit cues, featured in their work, are logos and explanations/statements, such as “The material has been processed to be reused for a new life in this packaging.” Explicit cues can be further divided into two subgroups — associative and non-associative. Non-associative explicit cues are those that directly explain what the quality in question is, but do not connect it to the respective implicit cue (appearance, sound, or touch). Associative explicit cues are direct and connect the two. For example, “a recycled material is basically a material that has been processed” is non-associative. However, if elaborated — “[...]and therefore, can have different sensory features than conventional packaging, such as a different appearance, colour, sound or tactile sensation,” becomes associative (Granato et al., 2021).

On the other hand, implicit cues are non-verbal, sensory features that indirectly communicate the product quality. This is where packaging form potentially fits. The implicit group consists of meaningful and meaningless cues. Meaningful ones are those that clearly carry the meaning (of the property, e.g., sustainability) without an explanation. Green colour, recycled/kraft paper, and opaque recycled plastic are quite widely associated with sustainability. However, there are also meaningless cues that are relevant to the product quality but are not widely recognised as such. For example, the “sticky” feeling of certain eco-materials, or the sound bio-plastics make when touched, are not immediately reminiscent of sustainability, nature, etc.

Granato et al. (2021) have investigated how these cues, and their combinations, interact. Explicit cues, by themselves, generally raise perceived product quality, in their case, sustainability. Meaningful implicit cues also increase correct recognition, but meaningless ones do not. Surprisingly, the combination of explicit and implicit cues is not necessarily always beneficial to the product’s perception. Merging a meaningful implicit cue with an explicit one might not only fail to improve recognition but even backfire and create consumers’ scepticism (e.g., accusations of greenwashing). On the other hand, non-associative explicit cues presented along with implicit ones can also hurt the product by creating consumer doubt, as the explicit explanation fails to link itself to the experienced cue. However, according to the research, the combination of meaningless implicit cues and associative explicit cues is the way to go, and consumers comprehend the quality (e.g., sustainability) better.

Packaging powers: “Packaging powers” is not an academic term. Rather a simple model used by some marketing practitioners. The “powers” refer to stopping, holding, and closing powers of packaging. Stopping stands for grabbing customers’ attention so that the product receives at least a modicum of recognition. “Holding” power means that once the product is noticed, it sparks interest and encourages the customer to learn more about the product. At last, good product and packaging “closes” the deal — convinces that it is the right product for the customer (Tessmer, 2024). This directly links back to the cue utilisation theory and the model (figure 8) proposed by Steenis et al. (2017), which presents that first a package and its cues are designed to be then perceived by the customer. If this stage is successful, then the customer will evaluate the product through the perceived cues and form an attitude towards the product. If the product effectively builds a positive attitude, then the customer is more likely to purchase the product, successfully “closing” this key moment of truth.

The concept of packaging powers emphasises how important the functional and communicative roles, and their representative cues, are. It is the case especially at the first moment of truth — point of sale. If a great product, even if it is already known to the consumer, is unnoticeable and cannot be found, then it simply cannot be bought. On the other hand, even if the product stands

out and “stops” the consumer but fails to communicate its qualities or communicates negative/unwanted qualities, then the product will be either ignored or actively rejected.

From a chaos packaging standpoint, packaging powers is a valuable framework. It stresses the benefits of form distinctiveness — chaos by nature disrupts and stands out. Therefore, the strategy should be perfect for drawing initial attention and “stopping” potential consumers. As a result, the product has a chance to “hold” and be bought by the customer. However, the framework also highlights the potential risks of the strategy. The value of stopping is irrelevant if the consumer immediately discards the product due to misunderstanding it. Chaos packaging appropriates packaging of a different category (e.g., fries in a milk carton), meaning that a consumer might confuse the chaos packaged product with products of the other category (milk). Since the customer is looking for a specific product i.e., fries, they will not be interested in other category products i.e., milk.

2.3 Packaging forms

Note for the reader: *This subchapter is relevant to my research but quite particular. It explores types of packaging, how they are called, classified, etc.*

Packaging form definition

One of the most important yet problematic terms is the one referring to the structural type of a packaging viewed as normal for a certain product category. I decided to call it as ‘packaging form’ and ‘form.’ Why not type, format, structure (structural design), category? Because each of the terminologies already have multiple meanings causing distraction, confusion, and misunderstanding. ‘Packaging type’ can refer to previously mentioned SKUs and primary/secondary/tertiary type of packaging. Packaging “format” amongst others can mean size, function or weight of a unit/product. ‘Structural’ aspect of packaging, and shape, refer to physical, three-dimensional features of a said package e.g., whether a bottle’s base is round or square, whether the bottle has a long or short neck, etc.

By ‘packaging form’ I mean the general structural type of packaging that is commonly associated with, and considered standard for, a specific product category. It refers to the typical three-dimensional design solution—such as bottles for wine, cans for energy drinks, bags for fries, or boxes for rice e.g., a bottle for either water or wine, a can for an energy drink, a bag for fries or a box for rice.

Packaging taxonomy

Different packaging forums and manufacturers use different logic and structure when mapping the packaging landscape, often focusing on their packaging expertise. However, SPHERE report (WBCSD, 2022) offers a clear structure of packaging taxonomy. Developed by WBCSD, SPHERE is a framework guiding firms towards packaging sustainability in general. Hence, their first step is a quite generic categorization of products either as food or non-food. As previously mentioned, this project’s focus is on consumables —food and beverage products.

SPHERE proceeds with differentiating products between dry and non-dry foods/beverages. This step is reasonable from traditional food manufacturer’s perspective. However, such step restrains the potential chaos of the investigated packaging strategy. For example, following the logic, a wine manufacturer would omit bags and focus their attention on beverage/wet food packaging, instead. As a result, BIB – bag in a box, a popular packaging form for wine (mostly high-

volume house wines) could be missed. The next SPHERE step is determining the “functional unit” e.g., 500 ml of cold beverage or 1 kg of dry cereals. Defining functional unit is an important step because it affects how much load the package needs to be designed to contain and protect, to assess how easy it is to handle and move, etc. In case of Lamb Weston fries, the retail formats (Lamb Weston uses “format” as a term describing the size/weight of the offered product) vary between 550 g and 750 g, with most of the products being 750 g. The second last step is to consider packaging features. Those include aspects like materials, shapes, size, packaging type (in this project’s case, primary), function, and complexity (figure 11). At last, a packaging taxonomy can be developed, and different packaging alternatives can be considered and compared (Figure 12).

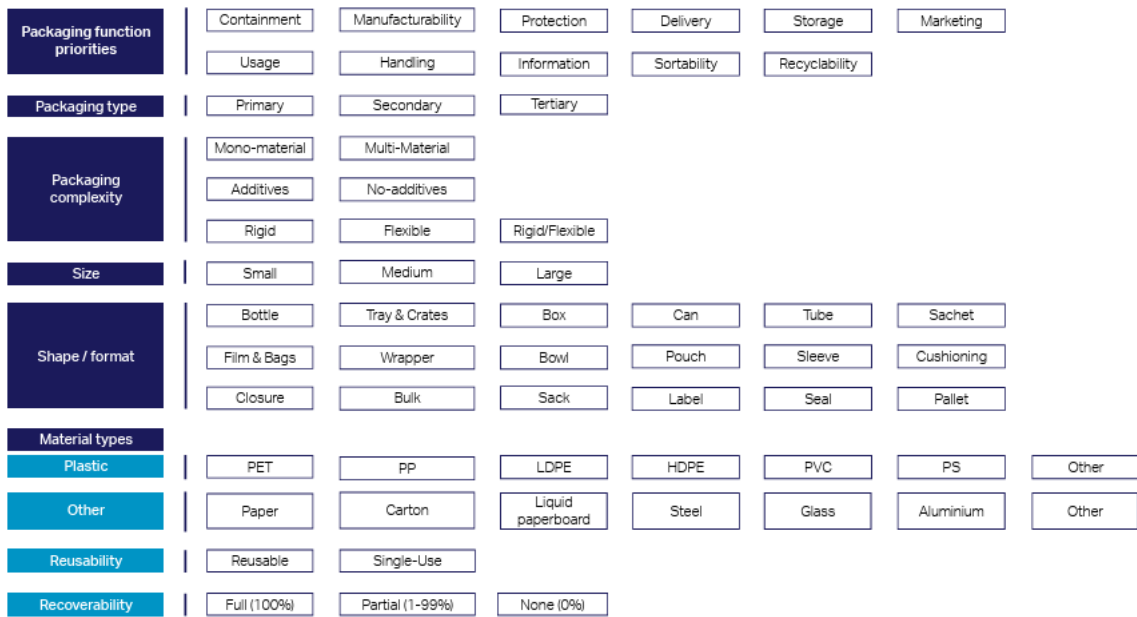


Figure 11 Non-exhaustive list of packaging feature. Taken from SPHERE (WBCSD, 2022)

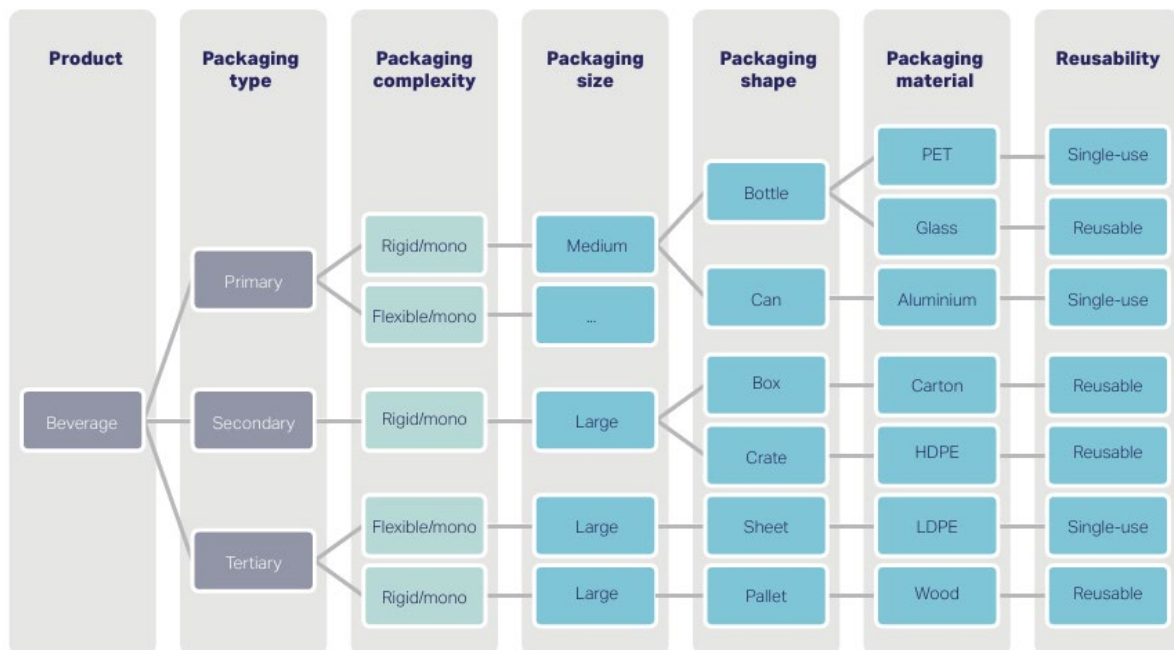


Figure 12 : Illustrative packaging taxonomy for a beverage. Accessed through SPHERE (WBCSD, 2022)

This project is focused on packaging form (or SPHERE’s “shape”). However, as discussed in further sections, packaging form does not exist by itself. Customers judge products in a greater context. First of all, they are concerned with the content — the actual product, secondly, price, and then other factors such as packaging. Packaging properties do not end on the form (e.g. bottle) either. They include structure (e.g. long vs short bottle neck), label, claims, material, rigidity, weight, texture, colours, and other packaging design cues and features. However, the form is special because it constitutes the “real estate” for all the other elements.

SPHERE framework lists multiple packaging forms (Figure 12), Such as bottles, films & bags, trays & crates, boxes, cans, tubes, sachets, wrappers, bowls, pouches, sleeves. The list could be expanded by cups, jars, tubs, and other forms. Clearly, the packaging form landscape is a vast and rich resource for food manufacturers. Especially when considering the depth and detail of packaging sub-forms. The exploration and listing of all packaging form possibilities would be impractical. The list is long and dynamic – new packaging innovations happen all the time, mostly incremental. Also, food manufacturers are likely to either simply choose a product category packaging or follow some framework, e.g. SPHERE, that compares forms based on their technical qualities and the firm’s needs. However, from non-traditional/chaos packaging strategy viewpoint, the overall awareness of the landscape and the deeper possibilities is critical. After all, the strategy relies on “borrowing” packaging form from one category to constructively (for the brand) implement and disrupt another category.

Boxes, foils, wraps & bags

For the sake of understanding the packaging forms’ range and depth, as well as common familiarity with certain packaging sub-forms, I’ll list and map the most directly project-relevant packaging categories – boxes and bags. Please keep in mind that the later discussed theory on categories and packaging was built upon various other product categories and their packaging forms, e.g. bottles, cans, bags for wine. Nevertheless, Lamb Weston and their frozen potato fries are the subject and point of reference in this project.

Bags: In everyday language, “bag” can be defined as “a soft container made out of paper or thin plastic, and open at the top, used to hold foods and other goods” (Cambridge Dictionary, 2025b). From the food packaging industry perspective, this definition is colloquial and lacking. Firstly, as earlier discussed, the range of materials is greater than just plastic or paper, i.e. metalised foils. Additionally, these materials are often mixed and/or merged (mono/multi materials, mono/multi-layered). Secondly, while the idea of an open top is not wrong, at least at the time of consumption, the bag needs to be sealable if it is to play the role of a reliable food container and protector. Nevertheless, “softness” is on point. A “bag” is a general term describing non-rigid packaging forms. While non-exhaustive, Vision Hunters Ltd. (2023) lists bag packaging neatly and with illustrations (Figure 13). Still, it is important to note that the packaging names are not necessarily universally appropriate and that some packaging forms and their names have vague boundaries. For example, the illustrated list exhibits a brick and flat-bottom bag but does not mention that the latter can also be called “brick bottom bag.” Furthermore, the non-rigidity of bags is not only explained by the materials used but also by their composition — single or multilayered foils. This quality is shared with another ‘flexible packaging’ form category — wrappers. The chief difference is that wrappers tend to contain smaller units, e.g. Mars chocolate bar. Interestingly, the two forms of packaging can be used together, e.g., a bag filled with individually wrapped candy inside. ‘Flexible packaging’ is generally formed around the product in a continuous filling (“flow”)

manner (figure 14), including rolling, sealing, and cutting the wrapper's foil material (Honor Pack, n.d.). Technically, wrappers, in the form of shrink wraps, can be used as a secondary packaging, too. However, this packaging form's use is restricted due to the PPWR EU regulation (Schilder, 2023; European Parliament and Council, 2024) and as secondary packaging is at the peripheries of the project's scope.

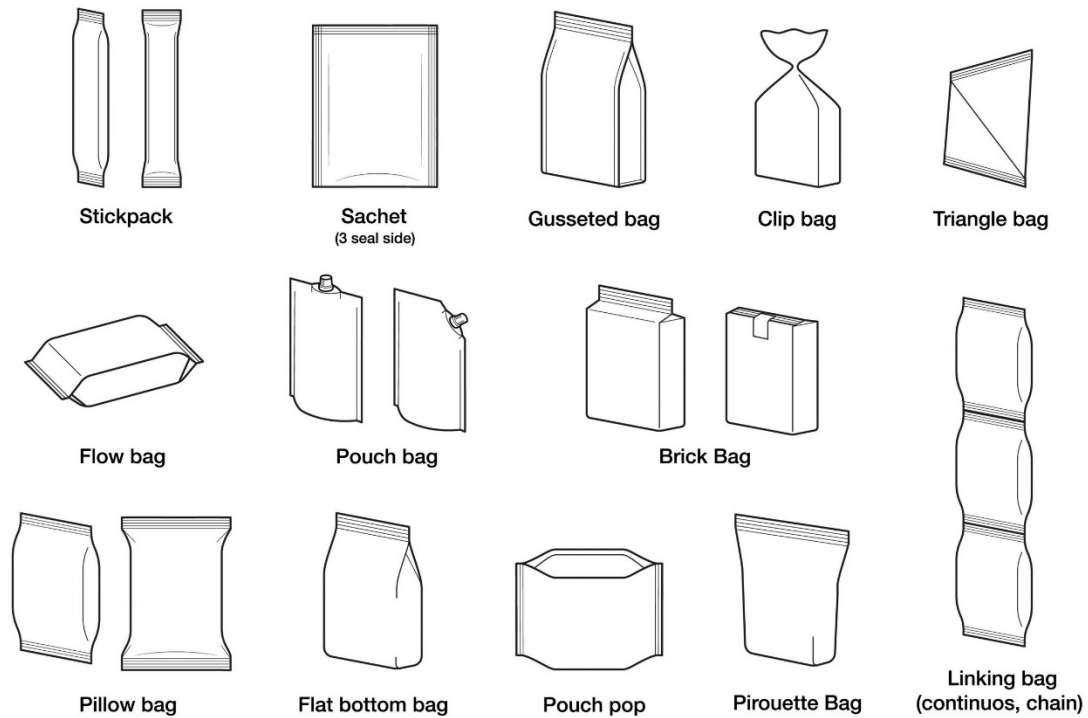


Figure 13 Illustration of "bag" sub-forms. Accessed through Vision Hunters Ltd. (2023)

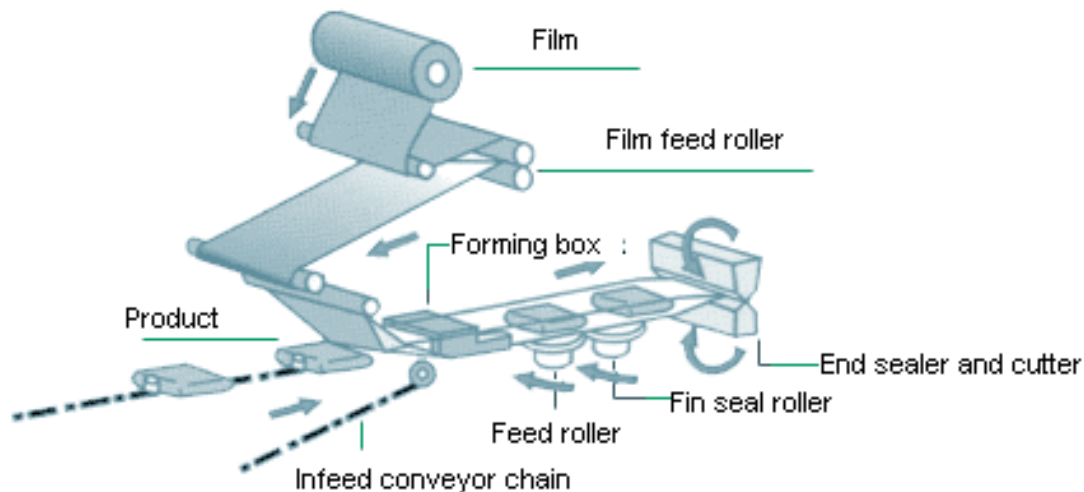


Figure 14 Flow wrapping machine. Accessed through Honor Pack. Honor Pack also provides an animated version that can be accessed through this [link](#).

Boxes: The landscape of boxes and other rigid, paper/fibre-based packaging formats is yet even more inconsistent, terminology-wise. As earlier learnt, paper and box packaging are usually made of multiple layers to ensure proper content protection. Those layers can vary in material, e.g. cardboard for rigidity and plastic for moisture protection. The post of fibre rigid packaging is

made of cardboard that can be separated into two groups—solid (sometimes simply called paper/paper board) or corrugated boards. Solid boards are simpler and usually thinner than corrugated boards. The upside of solid boards is their flexibility, easier printing, better folding properties, and, of course, lower and lighter volume. The downside is that the material does not offer as strong rigidity or protection. It is because corrugated board can have multiple layers or “walls” and cushioning “flutes” in between them (Figures 15 and 16).

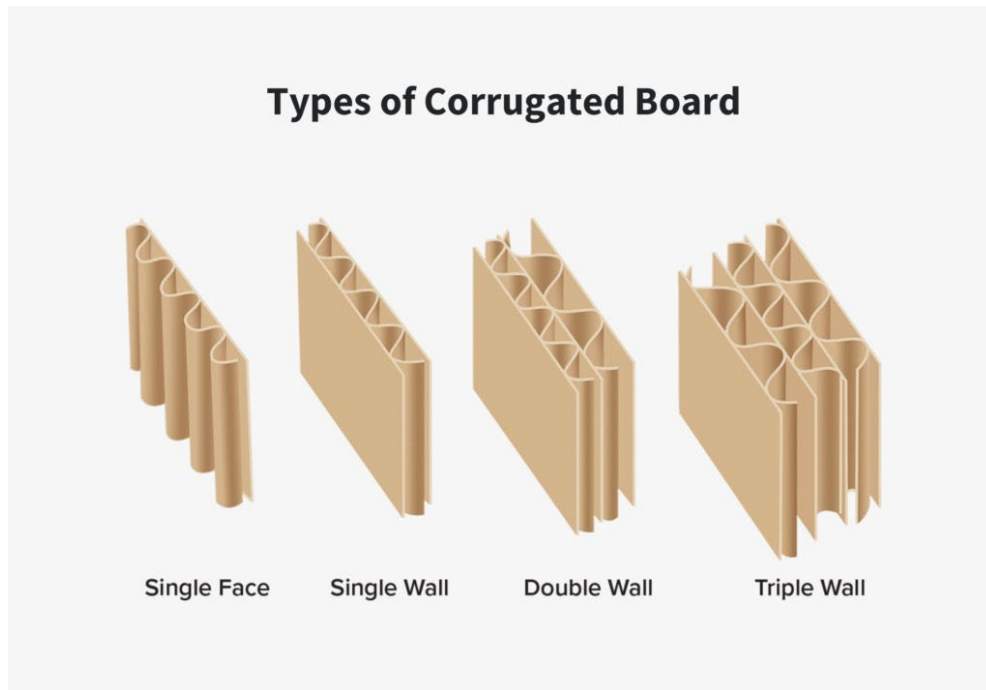


Figure 15 illustrated types of corrugated board, accessed via pakfactory.com

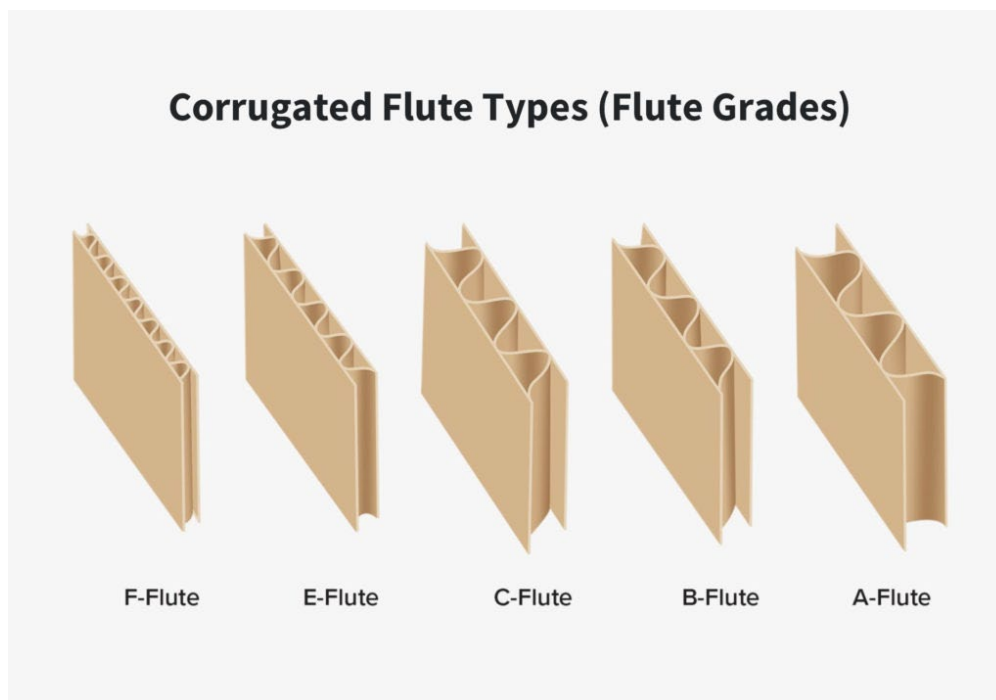


Figure 16 illustrated types of corrugated flutes, accessed via pakfactory.com

Even though corrugated boards might be sturdier and better in some conditions, the material is a poor choice in the context of frozen foods, as it can soak up moisture, delaminate, etc. Hence, paperboards are a much more common material of choice. Frozen fries are no exception — brands like McCain use solid board paper cartons for their microwaveable product line (figures 18 and 17).



Figure 17 McCain quick chips packaging — a bag holding 4 paperboard containers; Accessed via www.mccain.co.uk



Figure 18 McCain quick chips packaging — 2 paperboard containers found inside the bag;
 Accessed via www.alamy.com/

These paperboards are printed on, laminated and/or coated to enhance the barrier properties. Then, the boxes are cut and creased from the multilayered sheet, along a predefined 2D design — a dieline. The next step is folding and glueing it if needed (Figure 19). At last, the box is filled with the product and sealed.

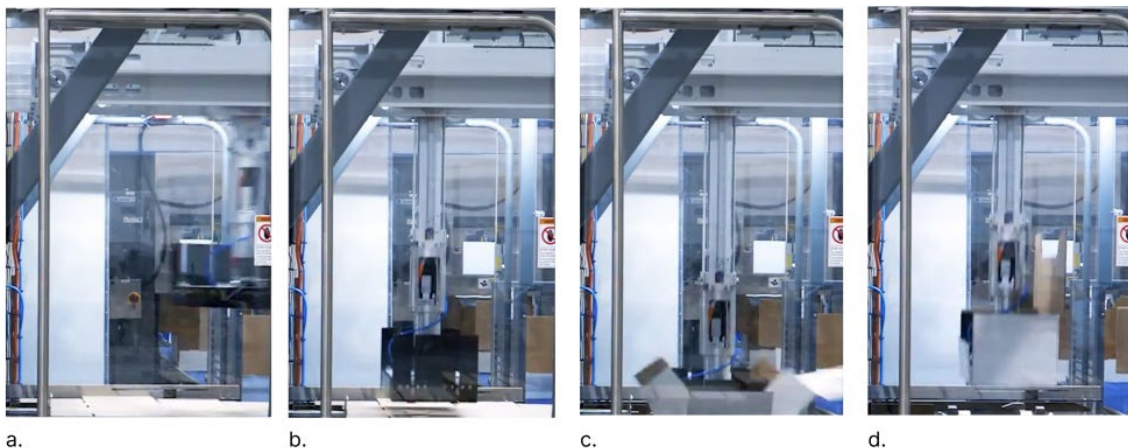


Figure 19 Box-folding automated line. Accessed through Delkor Systems (n.d.) a – a flat cut but unfolded sheet, b and c – the sheet is pressed and folded, d – the folded box is lifted and moved to the later stages of filling and closure.

One outstanding sub-form of box packaging is ‘bag-in-box’ or ‘BIB,’ the opposite of McCain’s box(es)-in-bag. BIBs are packaging systems that combine bag and box packaging together, but in a non-merged manner, i.e. the bag can be removed from the box. BIBs are traditionally designed to hold and dispense larger amounts of liquids with a dispensing feature, i.e. a spout. The principle of two separate containers is present across dry and semi-dry foods as well. For example, plastic bags of cereal and plastic-wrapped frozen pizzas can be placed in boxes. The premise of separability has many implications. On one hand, it can be perceived as

environmentally friendly, as different materials can be easily segregated and properly disposed of. On the other hand, the separation creates a “second” tangible packaging, which could be perceived by consumers as inherently wasteful — “why pack in two, instead of a single packaging.”



Figure 20 Examples of BIB packaging. Accessed through www.wijnvoordeel.nl, www.printindustry.news, and www.reddit.com

2.4 Frozen fries packaging

Netherlands

The Dutch frozen fries category solely uses pillow bag form packaging (Figure 21). Interestingly, even “fresh fries” follow the formula. Those are frequently sold in transparent pillow bags. Fresh and frozen fries are very similar products. Fresh fries, just like the frozen ones, are usually pre-cooked and seasoned. Hence, the only difference is price, storage and, by extension, in-store location. Frozen fries are sold in the frozen section, usually at the back of a store. Meantime, fresh fries are kept refrigerated, typically adjacent to the vegetable/fruit store section. Due to the difference in storage, the shelf life of fresh fries is much shorter — counted in days (while frozen in months). One of the few exceptions from the norm is Friethoes’ fresh fries, sold in a rigid plastic container sealed with transparent foil on top and a paper sleeve with branding elements and information (Figure 22).

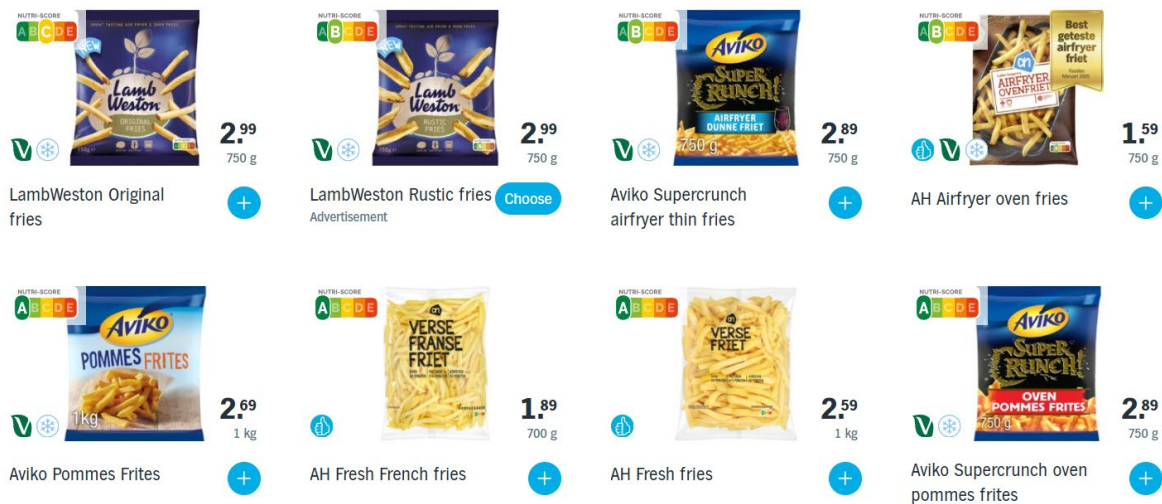


Figure 21 Selection of the fries' category offer at Albert Heijn



Figure 22 Fresh fries by Friethoes (Netherlands)

UK, Ireland, Canada

The monotony of the Dutch market is quite unusual, especially when compared to more advanced markets, e.g. the UK. During my field research (store visits) in the UK, Ireland, and the Netherlands, I clearly saw that British and Irish stores dedicated at least twice as much shelf (freezer) space to a greater number of frozen fries and other potato and snack products. The difference is not as easy to spot when comparing just the retailers' portfolios. As of November 2025, Albert Heijn (Dutch retailer) offers 67 unique frozen potato products (Albert Heijn, n.d.) while Tesco (British retailer) offers 80 (Tesco, n.d.). The unexpected narrow difference can be explained by two factors. Firstly, not every physical store needs to offer the whole product portfolio. Secondly, more dedicated shelf space might be required by a greater volume of sales — more of the same product needs to be available at hand. However, the difference is more noticeable when looking into the types of fries offered. The British market features products like

“quick chips” which are microwaveable and usually sold in boxes or McCain’s “shake shake fries” or “vibes” both sold in pouch pop bags (Figure 24). Additionally, I have found standard fries with classic paper fry-cups, which were also packed in boxes so the holders would not crumple (Figure 23).



Figure 23 Boxed fries with a fry cup inside (Ireland)

Interestingly, McCain is also experimenting with less typical packaging for their “Superfries” line in Canada (Figure 25). The Canadian packaging is slightly misleading (structurally). Superfries presented on the left seem to be packaged in a DOY bag, while the ones on the right are in a bag with side gussets and bottom gussets or a flat bottom. Both designs, especially the flat/gusseted bottom, are more capable of “standing” than a traditional pillow bag. This quality is probably the reason why the packaging was presented that way on the online “shelf” and the social media advertisement. It is a standard practice to ‘optimise’ the imagery of packaging in the online environment to highlight the most important product features. For example, a pack of fries might have enlarged icons depicting the preparation method (deep/air fryer or oven) so the property is legible on a digital screen, e.g. of a smartphone. Meantime, an element like a nutri-score label might be removed from the packaging itself and separately placed next to it or even moved down to a product description on the retailer’s website (Figure 21). On the other hand, structurally optimising packaging for marketing purposes might be a standard practice, but new to me. However, the rationale behind this is clear — McCain wanted to make sure that the fries, featured on a plate in the advertisement, are linked to the brand and the product name (Superfries). A flimsy bag with an unoptimized label design would pose barriers to the intended communication.

The bags found in Canadian stores differ from standard pillow bags because they include side gussets. Rather than adding extra material, the bag is simply folded differently. This folding creates visible “sides” which make the packaging slightly more rigid. These sides also offer extra surface area for printing — for instance, Superfries uses them to display nutritional information. Moreover, the bag’s structure allows the bottom to flatten under the product’s weight, improving stability compared to a regular pillow bag.



Figure 24 “Shake shake fries” accessed via mccain.co.uk, and Canadian “superfries” via mccain.ca, [instagram.com/reel/DIJ4rAGy0_S](https://www.instagram.com/reel/DIJ4rAGy0_S)



Figure 25 In-store photos of McCain superfries’ packaging; photos taken by a friend—Stella Hsuh

2.5 Chapter summary

In this chapter I discussed what packaging is and how, when, and why it is used. The primary learning is that packaging is not the product, at least not from the consumer's perspective. Indeed, packaging is integral, and often representative of a product in a consumer's mind — a “silent salesman” (Rod, 1990). But it is also a “moving waste” — “a mere container that is thrown away” (Granato et al., 2021). Nonetheless, products and packaging share many mutual characteristics.

Firstly, packaging is developed, designed, assessed and engineered, just like the products within. Moreover, packaging can enhance and add value to the product itself. That can be done through two general roles of packaging — functional and communicative. Functional roles include protecting and extending the shelf life of the product, as well as handling, portioning, and other tasks. The communicative role enables different stakeholders, especially the consumer, to interpret the product, as packaging is representative of the content inside. Packaging conveys information about the product itself (e.g. ingredients, size, usage, or preparation), the product's qualities (e.g., freshness, origin, value), and, of course, about the packaging itself (material,

recyclability). This representation is conveyed via cues that can be categorised along either what type of senses are used (exteroceptive/interoceptive), product's inherency (intrinsic/extrinsic) or the manner of communication (implicit/explicit). Packaging design (label, shape, and form) will consist of exteroceptive, extrinsic, and both implicit (most relevant to packaging form) and explicit cues.

Because packaging is so critical during all stages of a product's life cycle, it is reasonable to consider it a system, a system that provides services (PSS) to the product and all stakeholders involved. From the consumer's perspective, there are two major MoTs (Moments of Truth) — when deciding on purchasing a product and during its consumption, including disposal. Keeping the two in mind is important because even if the product is successful at the first MoT, it will not be purchased again if the second MoT is a failure. Another learnt insight is the concept of 'packaging powers.' The framework considers three "powers" (stopping, holding, closing) as assessment criteria of any packaging, especially relevant to the first moment of truth at the point of sale. The assumption is that chaos packaging excels in the stopping power but is likely to underperform in holding and closing. Additionally, I observed that the Dutch market is completely uniform in the pillow bag packaging form, while countries like Canada and the UK have a greater product and packaging variety.

III. LITERATURE REVIEW



Chapter III Literature review

To confront and elaborate on the assumption, this chapter is dedicated to a literature review. The particular topics, and respectively subchapters, of interest are: 1) branding; 2) Categorization theory — exploring how people gather and hold information, and how it can be used to assess or even optimize chaos packaging; 3) Customer response to newness — concerned with novelty, innovation, uniqueness, and general newness adoption; 4) Consumer needs and wants; Subchapter 5) Chaos packaging — finally looks into the key concept of CP and reviews relevant literature; At last, in subchapter 7) I summarize the key learnings including risks and opportunities of innovation, and reiterating the striking research gap.

3.1 Branding

CBBE

CBBE, or customer-based brand equity, is a concept developed by Keller (1993), who defines it as “the differential effect of brand knowledge on consumer response to the marketing of the brand.” In other words, does a brand presence have an effect on consumer reaction? The goal of a brand is to evoke more favourable reactions to the branded material. Hence, it must build buyers’ brand knowledge (recall and recognition) and create a positive brand image (associations) in the consumers’ minds. Eventually Keller (2012, original edition 1998) introduced the model in the form of a pyramid (Figure 26). It has four levels: 1st (base) identity, 2nd meaning, 3rd response, and 4th relationships. Each level answers a question, from the customer's perspective: 1) who the brand is (awareness, recognition recall, notability); 2) what the brand stands for (performance and imagery); 3) how I (customer) feel about the brand (judgements and feelings); 4) what is my (consumer) relationship with the brand.



Figure 26 Keller's CBBE pyramid (resonance model)

Brand growth

Romaniuk and Sharp (2021) empirically prove that for brands, growth is dependent on penetration and not on customer loyalty. It is because of the law of double jeopardy (Ehrenberg, 1972) — “smaller share brands have fewer sales because they have many fewer customers who are slightly less loyal” (Romaniuk & Sharp, 2021). This revelation has important practical implications. While high brand loyalty is valuable to a brand, focusing on the customers who purchase the brand's products more frequently is a mistake. Consumers who purchase a product category significantly more often are called ‘heavy buyers.’ These are the people who potentially are loyal to some brand, but there are relatively few of them. As a result, if a brand focuses on these buyers, then the majority of all consumers are ignored, leading to a loss of market share. The second implication of the law is that the larger the brand, the higher the loyalty. Hence, the conclusion is simple — focus on the large majority, the light buyers.

Brand strength

According to Romaniuk and Sharp (2021) brand's performance depends on its mental and physical availability. The two market assets together can be considered an overall strength measure. Mental availability is the probability of a consumer thinking of a brand when in a buying situation. If a consumer is in the store and plans to purchase a product of a certain category, they are much more likely to choose a brand that they associate with the category (or need). Hence, the concept is based on the premise that brands exist in our memory/subconsciousness and resurface in response to cues and associations, relating the concept to CBBE (Keller, 1993). As shown in the gag cartoon below (Figure 27), brands do not exist without the general associative network. Therefore, the trick is to build the right connections between the consumer's need and the brand, so one retrieves the other. Such a link is called ‘category entry point’ (CET) or as Romaniuk (2003) puts it, “mental distribution channel.” An example of a CET for fires could be dinner at home; in such a scenario, one consumer might think of fries as a staple and then think of a brand. However, such CET is relatively weak since many other product categories are

simultaneously thought of (e.g. boiled potatoes, delivery, salad, etc.). Even if the potential buyer thought of fries, it still leads them to multiple different brands.

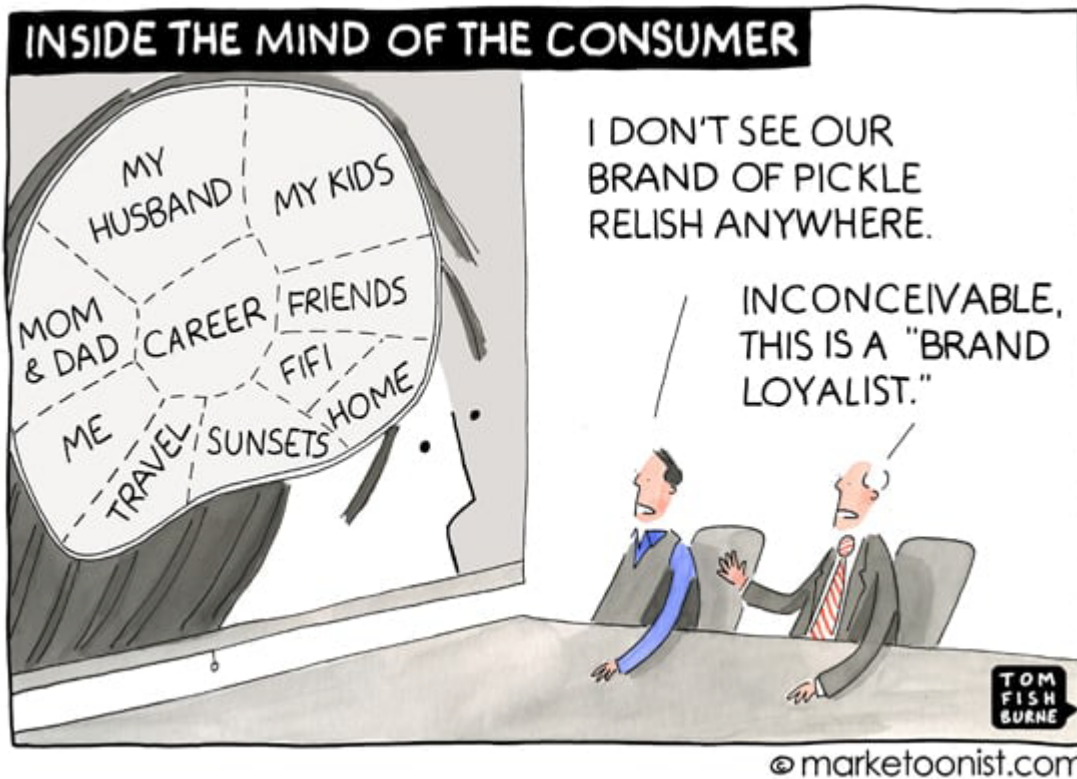


Figure 27 A gag cartoon by Tom Fishburne; Accessed via marketoonist.com

Physical availability is about “making the brand easy to find and buy” (Romaniuk & Sharp, 2021). This availability has three pillars—presence, prominence, and portfolio. Presence stands for the brand being accessible, being where the buying happens. Prominence means that the brand is easy to find in the shopping environment. At last comes the product portfolio itself—brands must ensure that they have a relevant offering for the consumer in the buying context. For example, a thirsty person walking their dog won’t buy drinking water if the only available options are 5-litre bottles.

Distinctive assets

Distinctive assets (DAs) are “non-brand name elements [...] that can trigger the brand for category buyers.” Such elements can be logos, colours, characters, fonts, sounds, taglines, etc. These assets are extremely valuable in brand-consumer communication. Firstly, they help with physical availability. Such assets enable consumers to find the product in the shopping situation. Secondly, these assets can be effectively used in marketing. For example, McDonald’s does not use the entire brand name to identify itself; the golden arches or their slogan “I’m loving it” are enough for most consumers. Romaniuk (2018) developed two metrics assessing the strength of a distinctive asset—fame and uniqueness. Fame stands for “the proportion of category buyers that links the brand name to the asset.” The higher the fame, the more likely the category buyer is to think of the brand. Uniqueness means “the share of responses for that asset that goes to the brand (versus the competitor’s brand).” For example, blue might make many category buyers think of the Lamb Weston brand, making the asset potentially high in fame. However, the same buyers might think of Aviko—the other blue brand, meaning that the asset has low uniqueness. Hence, brand managers should develop at least some optimal “use or lose” distinctive assets

(Figure 28). It is important to keep in mind that DAs are designed and propagated by brand managers. If a newly developed, unique asset is not announced, showcased, advertised, etc., then despite the unique design, it will remain low in fame.

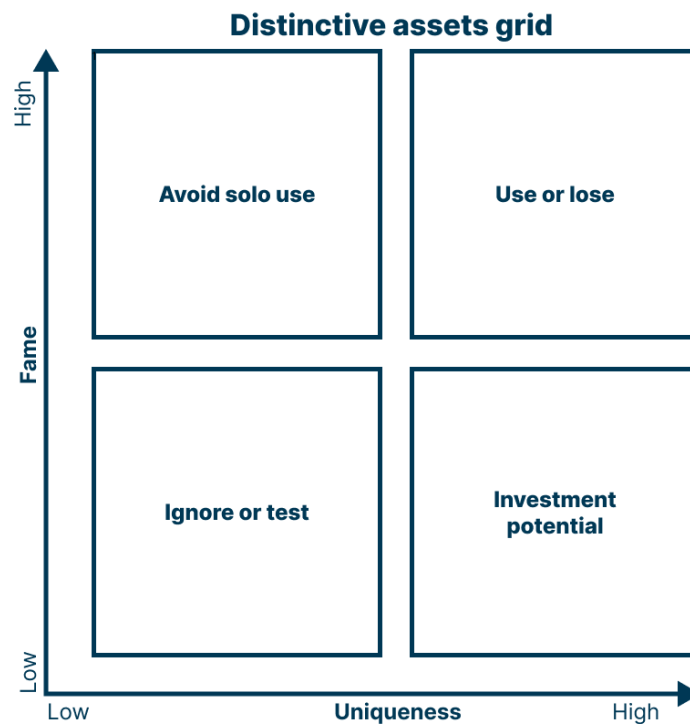


Figure 28 Distinctive assets grid, adopted from Romaniuk and Sharp (2021)

Differentiation

> Note to the reader: “ZAG: The number One strategy of High-Performance Brands” is not an academic or research-based resource. Neumeier (2006) shares his viewpoint on branding, which is experience-based and indirectly research-inspired. While his work is not going to be considered as academically/science-based, his insights, especially relevant to brand differentiation, are going to be used as signifiers of the direction for further research.

In his book, Neumeier (2006) argues that the primary challenge a brand and the potential customer face is clutter. Clutter meaning too many products, services, features (in each product), media messages (advertising), elements pf/per message, and competing channels. According to him, clutter is detrimental to brands because “the human mind deals with clutter the best way it can — by blocking most of it out,” meaning that potential consumers will straight up ignore and, at best, forget most of the available and advertised offers. This insight correlates with the earlier established concepts of mental and physical availabilities. Neumeier continues, “[...] What’s left, the stuff that seems most useful or interesting, gets labelled and stored in mental boxes.” The second part of his thought links to associations and the concept of category entry points. As well as later discussed, theories on categorisation, mental models, curiosity, and perception of usefulness.

Neumeier’s answer to the challenge of clutter is a “radical differentiation” (ZAG) — where everybody zigs, zag. According to him, an aspiring market leader cannot play safe and conduct

their business, including positioning and product offering, in the same way as other market players. A market winner is different and offers something that separates their offer from their competitors'. This is why innovative, and aspirational brands aim to be good and different — top right quadrant of the chart in Figure 29. However, being different attracts many negative comments during consumer research before the launch. Hence, most brands prefer the top left quadrant, as it seems safer, especially considering that they receive lower “negative” customer feedback, e.g. that their offer is weird, ugly, or offbeat. Neumeier counters this logic with a claim that “the reason customers don’t make negative comments [...] is that there’s nothing new or different to dislike.”

A brand bringing something new to the table implies that the brand is either extending an existing category or creating a new one. This is what the author calls searching for “white space” or “hit ‘em where they ain’t” and suggests using consumer/job-based innovation instead of product-based innovation. This logic will be further investigated in the subchapter 3.5 (Consumers’ needs and wants). At last, it is important to acknowledge the potential risk of wrong brand/product positioning. If a product is different but not good, it will eventually, and probably sooner than later, fail. Such a scenario does not only mean no prospect of profits but also no return on investment, missed opportunity costs, and potentially harm to the brand itself.

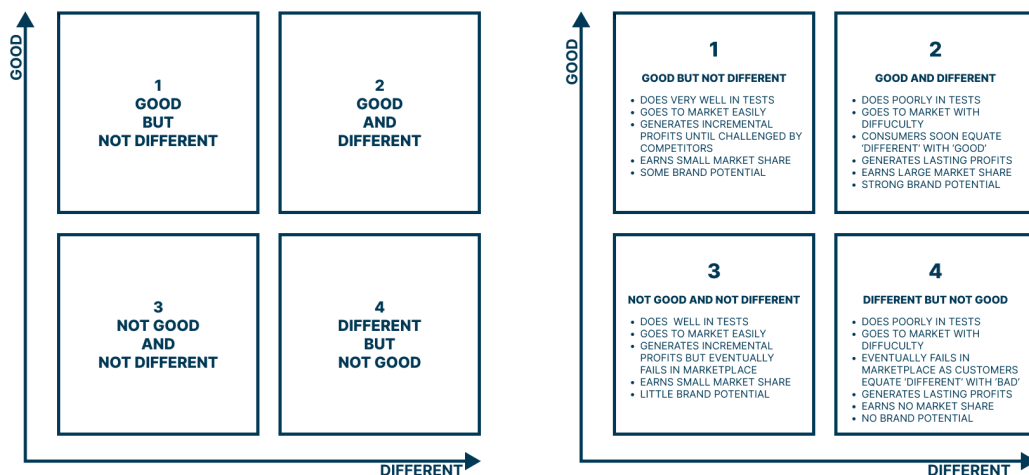


Figure 29 Good different charts from ZAG (Neumeier, 2006)

3.2 Categorisation theory

Categorisation, not to be confused with mathematics-related “category theory,” is a cognitive process and a topic of study, of learning and developing mental models for grouping knowledge about objects, events, and ideas. Eleanor Rosch (1976; 1978) researched the field and formulated the most fundamental principles concerning categorisation. Before delving deeper into theory and potential implications for packaging, I would like to stress that categorisation is context-dependent. First of all, as Rosch (1978) points out that her research was focused on categories set in a culture, formulated in the culture’s language, at a particular point in time. Consequently, it is important to keep in mind that categories can evolve, change, or disappear. Lastly, one should keep in mind that categories are not objective, universal truths. They are just

mental models, ways of thinking, shared between most people in the said culture, and affected by the immediate context.

This subchapter is dedicated to understanding how people think, process, and keep the obtained knowledge. It is necessary for the project as categorisation seems to pose both risk and opportunity of chaos packaging strategy.

Thinking inside the box

But why do we ‘categorise’ things? Merriam-Webster dictionary defines a *category* as “a division within a system of classification,” and Rosch (1976) as “a number of objects which are considered equivalent.” The inevitability of category development is explained by two principles — ‘cognitive economy’ and ‘perceived world structure.’

‘Cognitive economy’ principle is based on the premise that people need to assimilate massive amounts of information, at any point in time, all the time, and that their cognitive capacity, as a resource, is finite (Rosch, 1978). Therefore, categories allow to group knowledge, become a form of mental “shortcut” and reduce cognitive workload. As mentioned before, categorisation is highly contextual and is performed in the context of the person’s needs. People not only categorise stimuli to find similarities but also identify differences in other categories. Essentially, cognitive economy has two means of optimising cognition. Firstly, (reactively) categorising a stimulus makes it easier and faster for a person to have and access knowledge about it. Secondly, the person can differentiate between relevant and irrelevant stimuli before (proactively) cognitively engaging in their individual assessment.

While the principle was formulated to explain the reasoning behind categorisation, it is important to remember that it is always beneficial to any organism to receive and process information as quickly as possible and as accurately as possible. Another cognitive tool for faster information comprehension is an ‘analogy’. Using structure-mapping theory, Gentner (1983) describes analogy as a mapping of relations between objects. Her opening analogy example, “an electric battery is like a reservoir,” showcases a form of categorisation not based on physical attributes of the objects but their shared relation — storage of energy.

The ‘perceived world structure’ principle states that the perceived world is not completely random. Instead, Rosch (1978) argues that people notice the “high correlational” structure of material objects. An example the authors enjoy sharing is of feathers, wings, birds and flying. Because of our experience, we correlate, and therefore categorise, wings having feathers, and therefore to belong to birds, and be used to fly, even though not all birds fly, and not all wings are feathered. Nevertheless, making this connection is not a bad guess, as it relates to the most probable outcome.

Prototypicality

In colloquial language, ‘prototypicality’ means “typicality.” According to Rosch (1978), a prototype is the clearest case of category membership that could be judged based on *goodness-of-example*. It is important to note that no category is bound to a single prototype. Moreover, categories do not have rigid, well-defined boundaries. Interestingly, subjects participating in prototype theory studies Rosch (1976) were consistent in their assessment of how good of an example a case member was. Prototypicality can be used as a means to consider and assess category members’ attributes in comparison to other members of the category and other

categories. Rosch (1978) describes the relation in the following manner: “the more prototypical of a category a member is rated, the more attributes it has in common with other members of the category and the fewer attributes in common with members of the contrasting categories.”

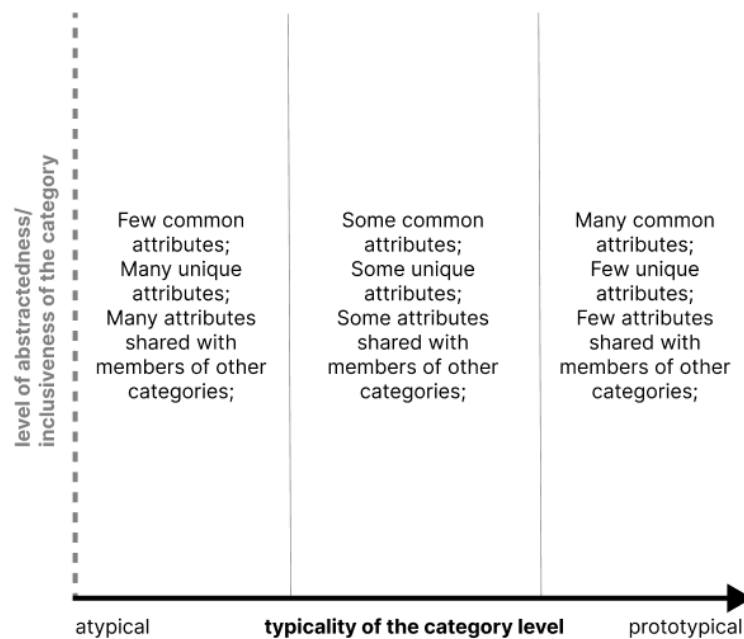


Figure 30 prototypicality axis

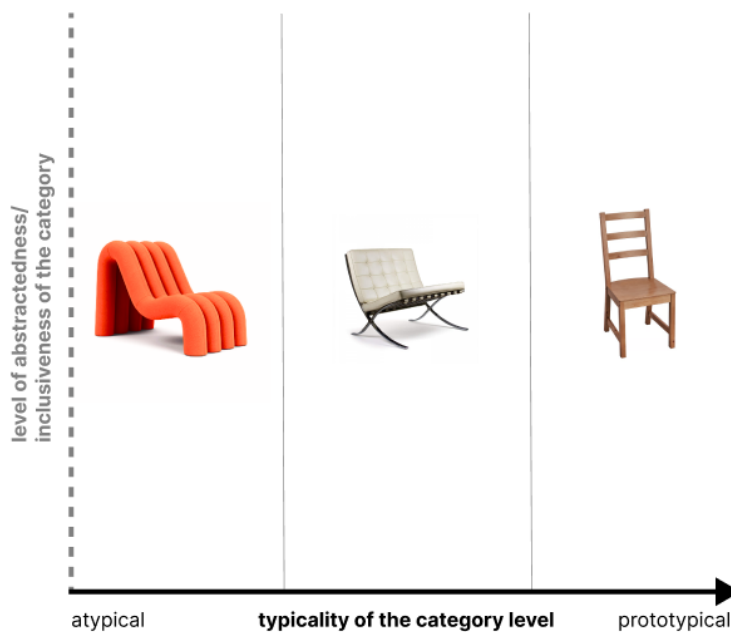


Figure 31 prototypicality axis - examples

However, there is a slight disagreement towards what an exemplar and a prototype are. Rosch proposes that a prototype is the best example, a category member with the most informative set of attributes. On the other hand, James Hampton (2006) builds on the theory and claims that prototypes should be recognised as more abstract. In his words, “generic concept that was constituted from the different ways in which the category members resembled each other and different from non-members.” Using an analogy, prototypical members can be considered “landmarks” of a category. Those prototypes are conceptual members, “man-made/built,” that

are the most representative of a category. Hence, they convey the most relevant information to the thinker and play a role of point of reference to other members and other categories.

Category levels

Prototypicality essentially is a measure of how typical a member is in comparison to other members of the group. However, the term group or category is flexible, subjective, and situational. As a result, a category could be very narrow or wide. A narrow category shares some attributes with other categories but in general is unique — “specialised.” An example would be office chairs category. A group of specialised chairs that share certain attributes e.g., sitting surface area, but have unique ones i.e., wheels to fit the specific environment they were designed for (an office). IKEA, a Swedish multinational brand and chain of furniture (and other products and services) stores (Wikipedia contributors, 2025b), offers various types of chairs, including office chairs. Their category architecture is set in the following way: home office > desk & desk chairs > desk chairs > a choice between “office chairs” and “desk chairs for home.” Rosch (1978) argues that these categories are helpful for people to comprehend the world structure and decrease energy spent on thinking, and this appears to be a very practical theory utilized by companies like IKEA. While office chairs are clearly a very narrow category with few members, the widest category, in the particular IKEA category architecture, is “home office.” That category is wider, has many more members (chairs, desks, lamps, folders, etc.) that share at least one core attribute — they all belong in home office space. Thus, it is clear that the more inclusive (wide) a category becomes, the more “abstract” (fewer common attributes between members) it is.

Rosch (1978) introduces three levels of category abstractedness. The superordinate level is the widest, inclusive and most abstract (the home office), the subordinate is the narrowest, exclusive and least abstract, and in the middle is the ‘basic level (objects)’ (fig 32 and 33). The ‘basic level’ is “basic” because it is the most useful and valuable to the thinker. Basic level, just like the categorisation theory, is context-dependent. Why does the level matter? Because it is much easier and faster for the thinker to find the right furniture for their home office if they browse the “desk chair” selection, instead of checking out pencil cases on the opposite side of the store. In such a scenario, the “desk chair” category level becomes the basic level. The basic level status is held neither forever nor recognised by everyone. Basic level is, after all, dependent on the context, situation, and thinker’s goals. The next time the person visits IKEA, they will probably be looking for another product in a completely different category.

Most importantly, basic level objects are the ones conveying the most relevant information to the thinker, saving their time and energy. Their relevance can be assessed through cue validity (Rosch et al., 1976) and or category resemblance (Tversky).

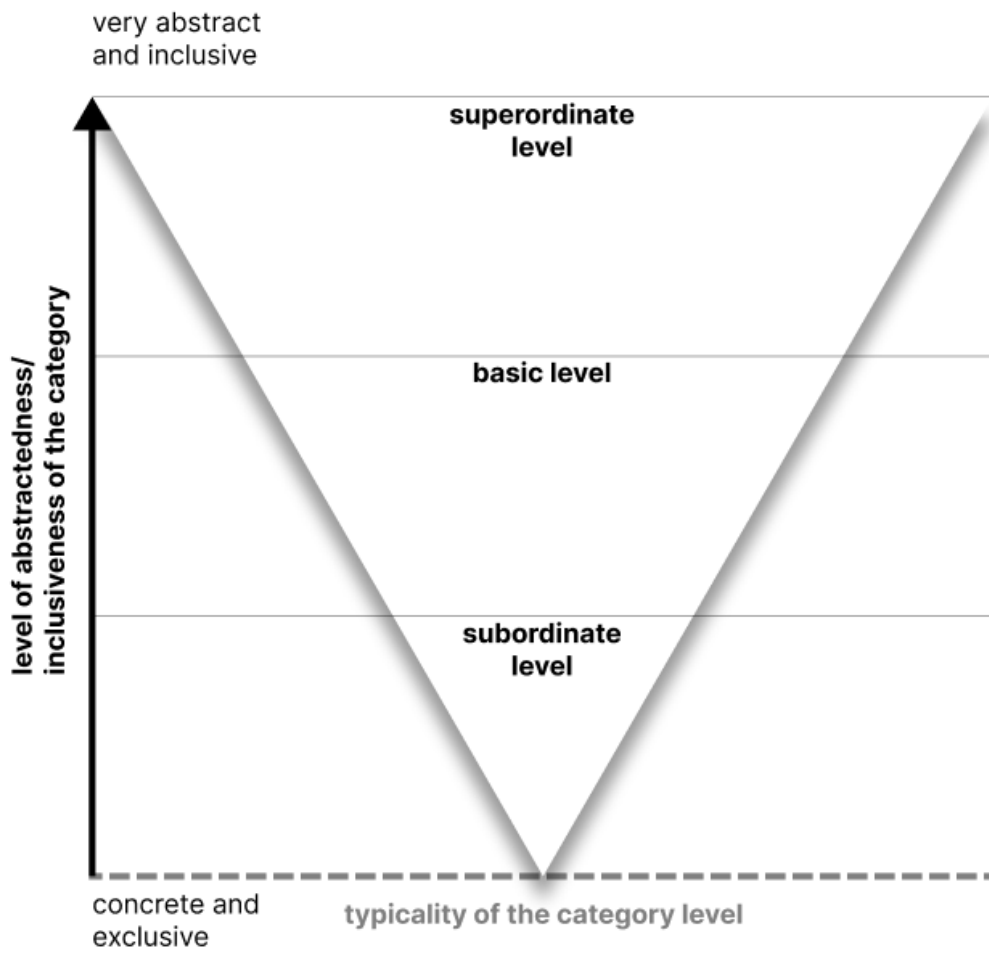


Figure 32 Abstractedness/inclusivity axis

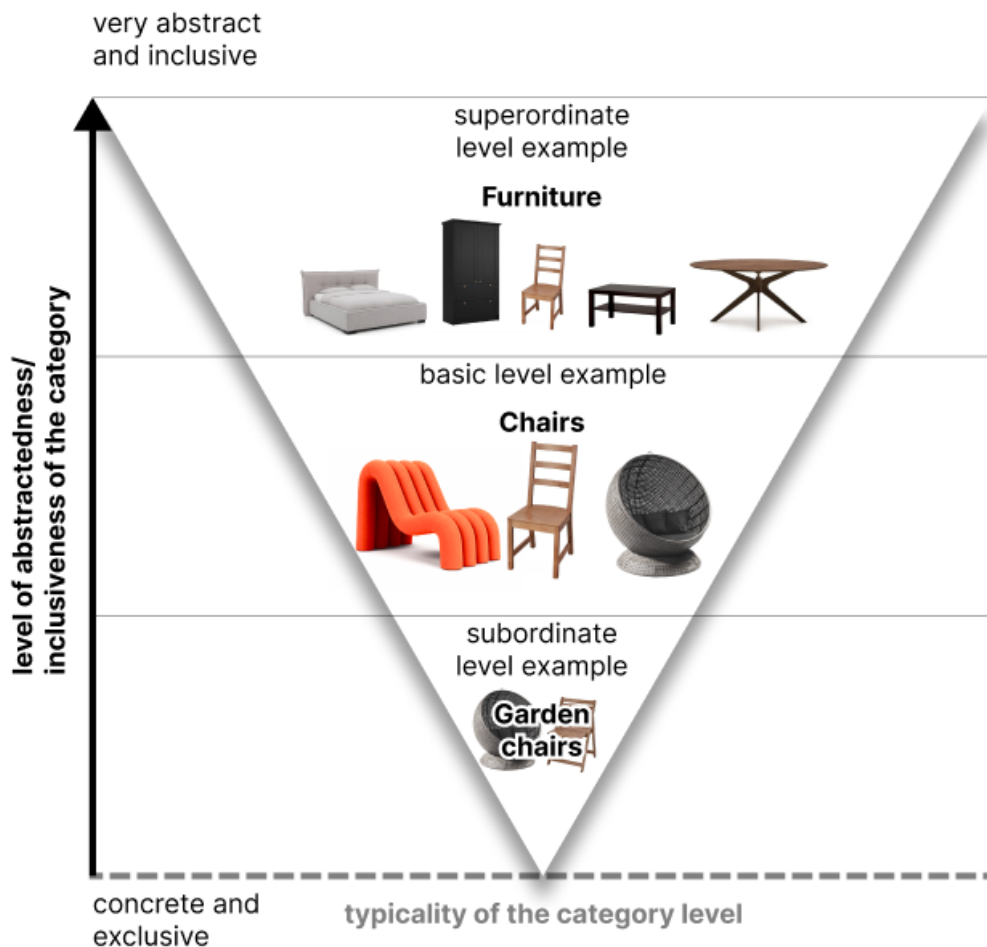


Figure 33 Abstractedness/inclusivity axis - examples

Image mould

After discussing concepts of category's prototypicality and category's level of abstractedness, it is important to introduce the concept of 'image mould. Image mould is a "particular packaging shape that has come to be associated in the mind of the consumer with a specific class of product, or on occasion its brand" (Spence, 2016). Such packaging, or rather its shape, is not necessarily the most prototypical. However, it is the most recalled example of the category. The boundaries between image mould, 'goodness of exemplar' and prototypicality are blurry due to the fact that the "best" example influences both other category members — other brands, and the customers' mental structures. However, one of the main differences between the image mould and prototypicality is that prototypes depict a greater range of attributes/cues (e.g. colours, textures) while image mould refers exclusively to the product's shape. Additionally, as stated in the definition, image mould might occupy two dimensions — product category associations and brand associations, making the concept even more relevant to the project, and creating a link to the earlier discussed (subchapter 3.1) concept of 'distinctive assets.'

Since Spence (2016) defines image mould as a packaging shape, the examples he provides are presented as packaging's silhouettes (Figure 34). Spence provides multiple examples of existing products that achieved image mould status, such as Wishbone's salad dressing bottle and Kikkoman's soy sauce bottle. However, it is important to keep in mind that categories and their members (hence image moulds by extension) are context and culture-dependent. A certain packaging shape might be the exemplar in one region but unrecognisable in another.



Figure 34 "Silhouette of the Wishbone salad dressing bottle. This image mould conveys the notion of salad dressing in the mind of the majority of North Americans" (Spence, 2016), right - Wish-Bone Italian Dressing accessed through amazon.com (2025)

As mentioned before, in the highly competitive and stimulated commercial environment, packaging cues help customers find what they are looking for. Image mould is a mental shortcut encoded in customers' minds that helps to recall and recognise the sought product on a shelf. This role links back to Byron Sharp's concepts of mental and physical brand/product availability, as well as Keller's brand salience. After all, recognisable packaging is a valuable brand asset (Romaniuk, 2018). A cliché example of such an exemplar is the classic glass Coca-Cola bottle. Famously, back in 1915, Coca-Cola briefed American glass manufacturers to design "a bottle so distinct that you would recognise it by feel in the dark or lying broken on the ground" (Coca-Cola, n.d.). Needless to say, the brand succeeded, developed a distinct brand asset and built remarkable brand equity. Now it ranks as the 15th most valuable brand in the world (Kantar BrandZ, 2024). Even though categories and associations are context-dependent. Coca-Cola managed to establish global recognition of itself, their product, and its bottle. Even more interestingly, Coca-Cola itself use the image mould (Silhouette) as a visual marketing and communicative asset (Figure 35).



Figure 35 Left - Coca-Cola - "Share a Coke" accessed through instagram.com, Right – "We All Understand Coca-Cola" accessed through lbbonline.com; Both campaigns designed by Ogilvy.

Spence (2016) points out another strategic value of image mould product category repositioning through “borrowing” the image mould from an already established product in another category.” Heinz’s breakfast ketchup marketing campaign (discussed further in section 3.5 dedicated to branding) does exactly that — Heinz ketchup, packaged in maple syrup bottles, borrows the packaging’s image mould. As a result, the newly packaged product seems more fitting in the breakfast product category, at least in the American market. Spence’s example is New Covent Garden Co.’s soup, unconventionally packed in a Tetra Pak carton. At the time, and still to this day, this packaging form is primarily associated with milk. According to Spence (2016), the soup product appropriates the freshness and naturalness of the milk category.

Implications: Categorisation of chaos

Categorisation theory augmented with concepts of basic-level objects and image mould sheds light on the role of norms and categories. As well as their impact on packaging and consumption. Knowledge of basic-level objects allows us to contextualise and position products in a manner that fits thinkers' mental models. It makes a difference what a potential customer is looking for. In the context of this project, is it fries or some other hot/cold side dish, snack, etc.? Regardless of the category architecture, every product exists in the mind of a thinker/consumer, in a greater context. Packaging’s role is to communicate the product’s attributes, and preferably for the brand, highlight the fit between the product and the customer’s needs/wants. Additionally, the prototype theory helps people assess and compare objects. Prototypical designs are easier and faster to mentally process (Rosch, 1978). Purchase decisions are usually quick, low-involvement, and customers are exposed to a lot of stimuli (competing products) (Romaniuk & Sharp, 2021). Hence, prototypical products might have the edge over products that cannot be correctly and/or quickly associated with the sought category. On the other hand, being too typical also poses disadvantages — why would a product be chosen if it does not stand out (discussed in the following subchapters)?

The theory draws attention to potential risks and opportunities. What happens when the product/packaging is not as prototypical as possible? Firstly, we know that the member object will not be processed as quickly as a prototype. In the worst-case scenario, such an object would either be miscategorised and/or ignored. After all, “items that were independently rated as atypical of the category there was considerable disagreement about whether they should count as category members or not” (Hampton, 2006). As a result, the product would not be chosen as it does not fit the customers’ sought needs that the category addresses. For example, if a rocking chair were placed in IKEA’s “home office” section, most likely it would be ignored, as it does not meet the customer’s needs for a chair made for their home office. However, this scenario opens our eyes to two unknowns. The first one being the question of what constitutes a sought category. And second—is the longer processing time really an issue? The second “packaging power” is to ‘hold’ — communicate the right information about the product to the buyer. ‘Holding power’ implies taking some time and cognitively engaging the customer. The concept of image mould further supports the idea that being different is not necessarily worse. Some examples of image moulds can be highly prototypical. However, the strongest cases of image mould, e.g. Coca-Cola’s glass bottle, show that it is possible to be different, recognisable, and very quickly mentally processable.

As a result, we can conclude that an extreme atypicality might lead to a lack of recognition and consequently to a product’s being passed over. On the other hand, hyper prototypicality, even though immediately recognisable, might be glossed over, too. It is because it does not showcase any unique selling points in comparison to other category members. As a matter of fact, this

relationship between typicality (prototypicality) and consumer evaluation is a topic of discussion in different theories like uniqueness, novelty, and innovation. Those will be discussed in the following subsection.

As mentioned before, categorisation happens within a context. The context environment of most grocery shopping are physical points of sale. Those teem with plenty of competing products, usually grouped together e.g., chilled milk brands share the same fridge and shelf. To further expand on the example and apply further categorization, milk brands will be in close proximity to other dairy products, such as kefir, yogurt, quark, cottage cheese, and eventually cheese. The point being — the retail space already utilizes, reinforces and assists categorization process. Perhaps it is not critical for a product to be as prototypical as possible, since the customer already knows what products to expect in the retail category section (i.e. the dairy aisle or in IKEA's home office). This suggest that the opportunity lies in striking a balance between being correctly categorizable and being different enough to offer wanted value to the consumer. Lastly, it is important to note that categorization does solely depend on the packaging's form. In-store

product placement, as well as other cues, can also assist in building the right product categorization in the eyes of customers.

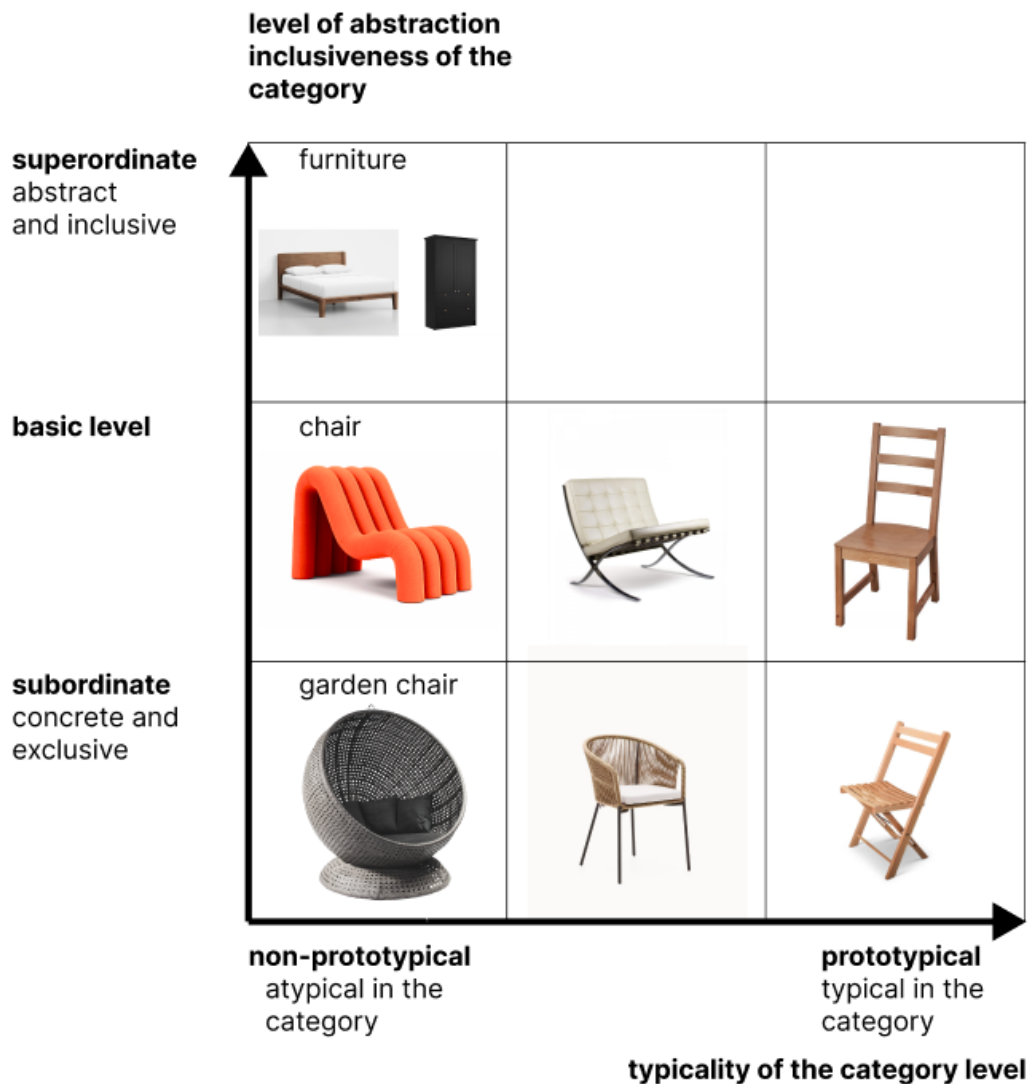


Figure 36 Mapped interpretation of "principles of categorization" including both 'category level' and 'prototypicality level' dimensions, with examples.

3.3 Consumer reaction to newness

At the beginning of the project, I believed I was investigating a new trend, noticed by few, familiar to none. Surely, substituting product category with packaging of another packaging to disturb the market and attract new customers would be risky and rare — a radical innovation! Quite on the contrary. Garcia and Calantone (2002) mapped out typology of innovation and according to their work the innovation under my investigation is neither incremental nor radical. In this section, I explain terminologies and concepts related to newness and innovation. Most importantly, this

subchapter will serve as a basis on which I can predict and assesses the psychological impact of chaos as a force of ‘newness’ or the “unknown.”

Innovation topography and terminology

Garcia and Calantone (2002) adopted an engineering definition of innovation as most adoptable to other fields like marketing and economics. According to the definition, *innovation* is an “iterative process initiated by the perception of a new market and/or new service opportunity for a technology-based invention which leads to development, production, and marketing tasks striving for the commercial success of the invention.” The definition puts forth three important tropes of innovation. Firstly, innovation is related to technological development and market introduction. Secondly, innovation is inherently iterative – meaning that innovation is neither axiomatic nor eternally complete. Instead, innovations are improved and reintroduced. Thirdly, the definition implies different stakeholders, e.g., customers, manufacturers, and sellers. On the other hand, we have the term *innovativeness*, which is defined as “a measure of the degree of ‘newness’ [...], and potential discontinuity a product can generate in the marketing and/or technological processes.” The more innovative a product is, the more newness it appears to have, and the more discontinuity is caused.

Focusing first on *newness* (who does it affect?) Garcia and Calantone (2002) proposed three classes of “newness perceivers” — the customers, industry, and firm (Figure 37). Industry and the world are considered the macro level, while customers and firms are members of the microlevel innovation. Innovativeness and discontinuity of an innovation will be differently experienced and perceived by these three groups. What is new to a firm might have already been present and practised by the greater industry. Also, the firm’s innovation might not be that “new” to the customer, either. Additionally, there are different degrees of innovation. According to Garcia and Calantone (2002), innovation can be divided into three classes: radical, really new, and incremental. The first and third classes are well familiar to most designers. “*Radical innovations* are innovations that cause marketing and technological discontinuities on both a macro and micro level. *Incremental innovations* occur only at a microlevel and cause either a marketing or technological discontinuity, but not both. *Really new innovations* cover the combinations in between these two extremes.”

Applying these definitions to the ‘chaos packaging’ field, it is clear that the innovation considered is *really new*, and not radical innovation. It is so because the discontinuity caused by “chaos” is on the macro level and introduces market newness, and on the micro level, primarily technological newness. Some packaging could be considered a radical innovation, e.g. back in 1969, Tetra Pak’s first aseptic Tetra Brik® (Tetra Pak, n.d.-a) was both technologically and market-wise disruptive on the macro level. However, by definition, ‘chaos packaging’ introduces chaos/discontinuity through the deployment of existing technologies, i.e. packaging types. Therefore, the only disruption the strategy causes is in the macro-market level, as well as internally within the firm which embraces alternative technologies. Using the same logic, while the application of “chaos” could be new to customers, the technology itself is not new to either of the three stakeholders in general, e.g., customers might not be used to whisky in a carton Brik but are used to the Brik technology in general.

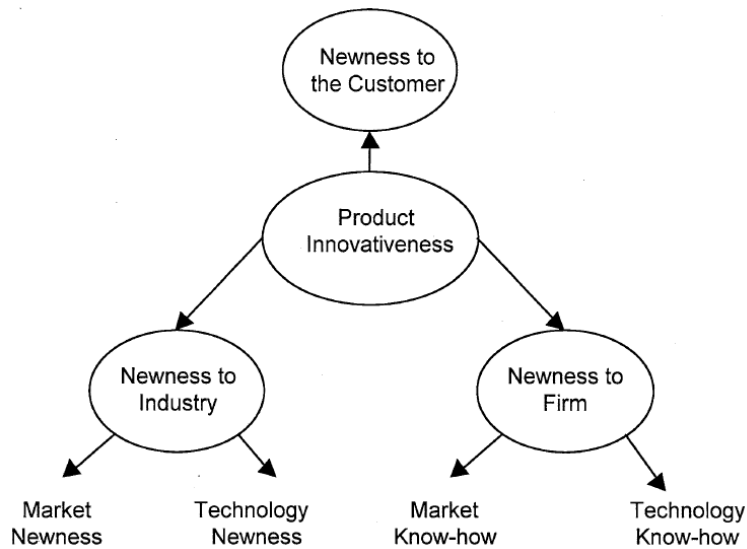


Figure 37 Operationalisation of innovativeness (Garcia and Calantone, 2002)

For Lamb Weston, operationalisation of innovativeness is important because it allows for sketching out the goal and system elements that need to be considered (Figure 38). If Lamb Weston decides to deploy a non-traditional packaging form, then the firm needs to consider its own internal chokepoints. Especially the technology know-how, since the new packaging means adoption and adjustment of a new packaging form, acquiring new suppliers, and establishing the supply and logistics. Most critically, filling lines would need to be adjusted to the new packaging. On the macro-level, non-traditional packaging would disrupt and discontinue the market. Depending on the new packaging attributes, the disruption could vary in its impact. Currently non-existent features like resaleability could be positively welcomed and challenge the market norms. Lastly, newness to the customer cannot be overlooked, as this newness is a tactical quality that the innovation offers. Fortunately, there is a great amount of research on customers' innovation and newness reception.

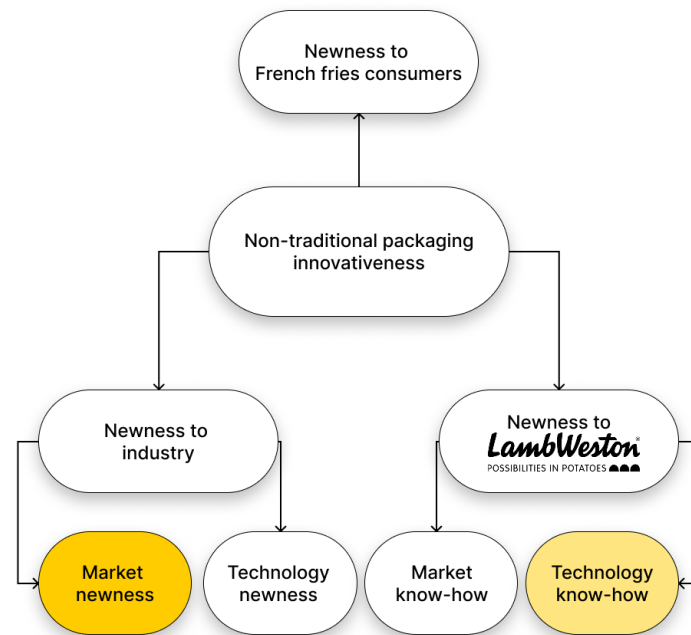


Figure 38 Operationalisation of innovativeness (Garcia and Calantone, 2002) adapted to the case of Lamb Weston and non-traditional packaging innovation.

Newness

We already know that innovativeness is a measure of newness and its effect of discontinuity. Talke et al. (2009), at the time assistant professors at TU Delft, introduced ‘design newness’ as a lens for assessing innovativeness. Design newness can also be referred to as novelty and atypicality. In categorisation theory research, we have established that typicality within a category is bounded by the least typical (atypical) members and the most representative (typical), landmark members – prototypes. Atypical members of a category share few common attributes (e.g. four legs, a back, and a flat sitting surface for most chairs), which in turn still allow category affiliation. Instead, atypical category members possess distinctive attributes that might be shared but only with a few other category members — introducing ‘newness.’ This relative and comparative nature of newness is very important in the context of customer perception. Both newness and distinctiveness are at risk of not being properly recognised by consumers (Granato et al., 2021). If the attributes are poorly communicated (via cues) and/or are taken out of context (lack of point of reference/category), then they are less likely to be correctly comprehended or even observed.

While packaging can be assessed through a product design lens, much of the existing research focuses on technological innovation, usually within high-tech product categories. Non-traditional packaging usually affects market newness and not technological newness of the industry. Therefore, some of the research focused on technological innovation is of limited value to low-tech products of the FMCG industry. Nevertheless, research done on newness and market/customer response is highly valuable, as it addresses the perceived (potentially) added value of chaos innovation.

Innovation

Time and timing are critical to both the introduction and perception of innovation. Of course, what we consider novel today, probably will not be thought of the same way in a decade or century. It is because, if successful, innovativeness is adopted over time by different brands. The more common the innovative attributes are, the more typical they become. A good example is the iPhone. It was arguably the first smartphone, radically atypical for the 2007 mobile phone category. Over the years, iPhones incrementally evolved, but their impact is clear – a rectangular box, with one screen covering the entire front of the device, with as few buttons as possible, became the norm — a prototype. Timing is important because launching any innovation at any time is risky, especially for the first entrants. As earlier mentioned, innovativeness has macro (the world and industry) and micro (firm and customer) levels. Perception and effects of innovation differ depending on the actor. In this section, we focus on customers' perspectives and try to answer the key question: how do customers perceive and react to innovation?

Earlier, we established that innovation can aesthetically appear innovative/novel with a prototype playing the role of a landmark – point of reference. This position is reconfirmed by Goode et al. (2012), who argue that a customer's ability to place a product within a category enables them to compare, contrast, and evaluate the product with more confidence. That potentially leads to greater perceived newness. Therefore, in the context of innovation, the customer's capability to correctly categorise a product and compare it to other members is critical for their appreciation of the product's innovativeness. If the category is clear to the customer, then the innovativeness and newness can positively impact product evaluations (likeability). Furthermore, Goode et al. (2012) point out that for products that might be difficult to categorise, "preparing the ground" is strategically important. Ground preparation can constitute a range of marketing and packaging activities, such as advertisements explicitly communicating the product's category and how innovative it is.

This line of argumentation is supported by Moreau et al. (2001), who investigated categorisation and consumer responses to really new products, i.e., innovative products that might be hard to categorise due to their newness. Moreau et al. (2001) find that the initially perceived category, for example, through curated marketing material, significantly impacts the final product categorisation, as well as influences customer expectations and preferences. The presence of a category label encourages customers to learn about the product, so they can map it and compare it to the category. Additionally, such a label guides customers' attention — the product's attributes are compared primarily to those of other category members. Lastly, as expected from categorisation theory, the ability to categorise a product leads to product expectations. As a result, it is easier for a firm to address and create a fitting and valuable experience for the consumer.

Novelty

Uniqueness

One of the driving reasons behind innovativeness and novelty adaptation can be linked to a human need to be different from others – a feeling of being oneself (Tian et al., 2001). Snyder and Fromkin (1977) define this need, a need for uniqueness, as "a positive striving for abnormality relative to other people." Tian et al. (2001) expand on the definition and use the term 'consumers' need for uniqueness' (CNFU) as "an individual's pursuit of differentness relative to others that is achieved through the acquisition, utilisation, and disposition of consumer goods for the purpose

of developing and enhancing one's personal and social identity." Being positively different is the key to product acceptance and adaptation, as it is a quality sought by customers to differentiate themselves from others. The CNFU theory guides us through the reasons why people seek to be different and how. Therefore, it hints at how to facilitate this differentiation through a product and its packaging. However, it is not clear whether the "differentness relative to others" is still applicable to products that are consumed with no, or almost no "audience", i.e. At-Retail frozen fries, prepared and served (usually) without packaging and at home.

According to Synder (1992), there are two main motivations behind the need for feeling different. One, external, being the potential reward — society appreciates those who are different but not too different. Deviants, those who are negatively abnormal, are social outcasts and penalised for their differences. However, those who are positively abnormal — unique, can expect related benefits. A good example, reappearing in the design and packaging context, is the 'beauty premium,' a phenomenon that "attractive people are rated higher than their less-attractive counterparts on positive traits unrelated to beauty", e.g. intelligence (Dion et al., 1972; Moreau, 2020). The internal motivation is the intrinsic satisfaction taken from the sense of being separate from "the masses." To reiterate, the end goal of the NFU (need for uniqueness) is the relative differentness of self to others, achieved through ownership and/or display of goods. It is important to understand that the NFU is an internal motivation, meaning that while external/social acknowledgement might be important to the consumer, the internal image of the "self" is, if not more, important (Snyder, 1992).

'Self-view' and 'self-image' enhancement is potentially critical to the project's topic, as the product concerned is typically nearly anonymously purchased, and consumed within the private setting of a home. As a result, the display of goods to the external audience (e.g., fellow supermarket customers, family at home, etc.) might be a factor considered by the consumer, but the inner audience — oneself is always present and concerned with identity choices made. After all, uniqueness is related to the self theory — an own appraisal a person holds of themselves on identity dimensions (Snyder, 1992). The self theory is enacted through consistency and enhancement processes. On one hand, people endeavour to maintain their own structural integrity over time. On the other hand, they tend to strengthen it.

While oneself is an important member of the "audience", it is still inherent to uniqueness to be different from others. Cardello et al. (2018) acknowledge that in their research on NFU and food — "group dining situations in which menu choices are made in the presence of other diners constitute a clear example in which need for uniqueness plays a significant role in choice behaviour." However, they also note that 'need for uniqueness in foods and beverages "can serve as a source of psychological self-identity for the individual." Furthermore, Cardello and her team found that consumers with high (FB)NFU (food and beverage need for uniqueness) were less polarised in their perception of unique and common foods, unlike their low GBNFU counterparts. The high FBNFU consumers are expected to enjoy unique foods better and have more positive emotions towards them, and to try them. Perhaps most importantly, these consumers consider the unique products as appropriate in a wider variety of occasions (e.g., alone, to share, to relax, etc.).

Therefore, uniqueness seems to be an adequate metric and variable to be considered in the assessment of chaos packaging. Alas, for one caveat — foods and beverages, the products, are not packaged. This criterion does not directly affect the acceptance and attitudes towards chaos packaging. However, it is important to keep in mind that the contents — novel and innovative products are going to be affected by FBNFU, most likely communicated through on-packaging

cues. Hence, the theory and the developed scale by Cardello et al. (2018) might be applicable, but in relation to the innovative product itself, and not its packaging.

Curiosity

Curiosity, just like NFU, can be considered an inherent, individual feature (Baumgartner & Steenkamp, 1996). From that point of view, a consumer is either always curious or never. Either they have a high need for uniqueness, or never any. However, people can be motivated and stimulated to learn more about a certain need. This motivation does not need to be eternal or encoded in one's genes. Rather, it could be curated, triggered, and momentary.

Hill et al. (2015) treat curiosity as a fleeting, arrangeable state. A state of consumer's desire to know and motivation to close the knowledge gap (Loewenstein, 1994). The authors show that mystery appeal is effective in triggering curiosity that, in turn, increases purchase motivation both directly and indirectly (consumer evaluation of the mystery appeal). It is a revelation because mystery used to be deemed negative and aversive (Hill et al., 2015). The authors define 'mystery appeal' as an attempt to "connect with consumers by intentionally withholding information about the product or promotion being offered." This concept is very relevant to chaos packaging, as the strategy creates a disruption and a potential confusion about the product and its category, since the packaging is atypical and hides the contents. Interestingly, Hill et al. (2015) found that people are "more curious when given moderate information, over minimal information." In that sense, moderation of information is also more effective than providing full information, as consumers tend to look for more information when they have a good lead, instead of none, but not the whole picture (Menon & Soman, 2002). Additionally, Hill and her team found that actively curious consumers had a more positive impression of their shopping experience in comparison with post-curious and neutral state shoppers.

Adoption

Perceived ease of use, and perceived usefulness: However, there are two other, but similar barriers — perceived 'usefulness' and perceived 'ease of use.' Davis (1989) uses the following definitions:

- a) Perceived usefulness: "the degree to which a person believes that using a particular system would enhance his or her job performance;"
- b) Perceived ease of use: "the degree to which a person believes that using a particular system would be free of effort"

Essentially, if a system in question does not seem to enhance performance, then there is no reason to use it. However, in the case that the system is deemed useful, it still will be rejected if the benefits of use are outweighed by the amount of effort needed to realise them (hence deterioration and not improvement of the performance). Davis (1989), in his work, was concerned with information technologies. Nevertheless, both concepts apply to packaging. If a packaging has features that seem unnecessary to the consumer, then there is little reason to choose a product in that packaging. Similarly, even if a packaging feature appears useful but is relatively too difficult to operate, then the product is most likely to be rejected, too. A hypothetical example for fries could be a packaging with child-resistant properties, i.e. fries in a child-proof box with detergent capsules or a Coke bottle with child child-proof cap (Figure 39). Unlike for the medicine product category, the packaging feature is most likely going to be seen as unnecessary. The negative impression would be further multiplied by the high difficulty of use.



Figure 39 Examples of packaging design with child-proof properties

Perceived ease of learning: An adjacent concept to perceived ease of use is perceived ease of learning. The two have been found strongly related in previous studies (Roberts & Moran, 1983; Whiteside et al., 1985). Davis (1989) argues that the two concepts are not separate, as many users or consumers tend to “learn by doing,” instead of engaging in reading instructions, guides, and manuals. This relation is consistent with the premise of categorisation theory, where ‘thinkers’ subconsciously look for ways of minimising the cognitive load. Hence, if a system appears to be difficult to learn, then the perceived ease of use is going to decrease, too.

Mugge and Dahl (2013) come to a similar conclusion but from another angle. They investigated the impact of newness on innovative products (conceptual washing machine, hairdryer, digital camera) and found that the radically, technologically innovative products could utilise a low design newness aesthetic to make the product appear more approachable. Not because newness in itself is less attractive, but because the look was suggestive of little effort needed to embrace otherwise advanced technology, i.e. use existing categories and mental models to assess complexity and cognitive load required to utilise the technology. In the case of packaging, a low-tech object, this knowledge is somewhat relevant because it draws attention to the basic fact that packaging does play a functional role. Therefore, certain non-traditional packaging might directly discourage customers from purchasing the product. Such an effect could be caused by a radically new packaging — one that has never been seen in any category. Since such packaging would be completely new to a person, they might be initially discouraged from purchasing it as it would require, even if minimal, additional learning effort. However, this cognitive barrier has a moderate influence on packaging. Firstly, packaging is traditionally low-tech and simple. Secondly, even if certain packaging is new to a specific market, it most likely is not new to the greater industry and therefore known to consumers via different product categories (Garcia and Calantone, 2002).

Introduction of innovation: a second learnt lesson from Mugge and Dahl (2013) is about two different possible introduction approaches that define how a firm positions its innovative products. The first approach is ‘product differentiation’. This strategy positions the innovative product within an existing category, therefore having moderately/low design newness. The other approach is ‘subtyping.’ This strategy essentially creates a new (sub)category for the product. Customers must establish new mental schemas, which takes effort but in turn prevents the

product from being compared, at least directly, with other products outside of the newly established category.

For Lamb Weston and the project, this is a significant insight. While the brand innovates its fries, e.g. by creating new flavours, textures, shapes, the products still compete within the immediate category — other fries (product differentiation). Nevertheless, Lamb Weston could be interested in competing and positioning their fries in different categories, such as hot snack, a dinner or lunch staple, occasion-based (e.g. for watching movies at home), etc. or creating a new one (subtyping). The combination of chaos packaging strategy, reliant on cross-category innovation, and business opportunity points towards the subtyping approach.

Two great and recent packaging innovations portraying the two approaches are Heinz's ketchup for breakfast marketing campaign and conceptual beer brand Ocean Blindness by Kenji Abe, both made public this summer (2025). Heinz has been trying to position their product as a part of breakfast for a while. However, recently (2025), Heinz might have started their boldest campaign preaching the belief (*HEINZ Breakfast | Heinz® US | Heinz, n.d.*). Entering and fitting the breakfast category would significantly increase the moments of consumption of their ketchup. Interestingly, the marketing campaign adapts a chaos packaging strategy – the new breakfast ketchup (same recipe as the old classic ketchup) comes in maple syrup glass bottles.



Figure 40 The Heinz Breakfast Ketchup will be available in maple syrup glass bottles in select diner locations. Accessed through [foodandwine.com](https://www.foodandwine.com), Yilmaz (2025)



Figure 41 Heinz breakfast ketchup campaign, images accessed through foodandwine.com, Yilmaz (2025) and heinz.com

Considering subtyping and category theory, it appears a logical choice, as maple syrup is considered, by many North Americans, as a typical breakfast product. Adopting the syrup’s packaging and associated attributes, Heinz can hope to create and strengthen associations between their ketchup and breakfast. Interestingly, this new packaging is not retail available, at least not yet. Instead, the new label can be found in 100 Waffle House locations in the US, while the syrup bottles are in nearly another 50 local diners (also in the US). However, this limited reach is aided by a nationwide advertisement campaign, like one shown in Figure 40 and 41. As a result, more potential consumers are being exposed to the virtual image of the concept than experiencing it firsthand. The Heinz case shows the possibility of using packaging purely as a vessel for communication and no function (barrier properties, etc.) at all. This campaign is an excellent example of how packaging is an integral but not independent element of a brand, its products, and marketing efforts. Moreover, this campaign foreshadows the importance of innovation diffusion and ‘ground preparation.’



Figure 42 Ocean blindness bottle concept by Kenji Abe 2025

The other example — Ocean Blindness is also interesting, but due to different reasons. First of all, it is not a commercial product. As the author states, “There are no plans whatsoever to manufacture or sell it. It was simply intended to inspire a moment of reflection on the sea” (Abe, 2025). Nevertheless, such a packaging concept is definitely innovative and if commercialised, it most definitely would create a new subcategory of beach-designed beers, other alcoholic beverages, or even alcohol-free beverages. However, not only does the packaging create unique positioning, but it also enhances it with additional functional attributes. After all, the bottle was designed to be stuck in the sand. This aspect of the packaging cannot be overlooked as it relates

to earlier discussed concepts of packaging functionality and ‘perceived usability.’ The bottle’s structure explicitly communicates its function, subsequently shaping customers’ perception of the ‘apparent usability.’ As a result, customers can imagine themselves with the product in the created scenario — on the beach.

Despite this atypical design feature, the bottle is easily recognisable as a beer bottle, despite its structural division, due to other category-fitting beer cues, such as the material, the crown cap, long neck, and cylindrical main body. However, the product’s “beerness” is further established through its label design. Ocean Blindness’ typography could be classified as gothic or Old English. This typography style is quite standard in the beer industry, used by brands like Leffe, Asahi or Corona.



Figure 43 Beer label design similarities. Images taken from seikatsu.nl, drankgigant.nl, and luekensliquors.com, respectively.

MAYA: A noteworthy analysis comes from Hekkert et al. (2003), who studied the relationship between novelty and typicality and their impact on aesthetic preference. The dynamic is interesting and directly relevant to chaos packaging because both, individually, seem to positively affect perceived products’ aesthetics while simultaneously oppose each other. On one hand, typicality, AKA ‘goodness of example’ or in this research as ‘prototypicality’ has effects on the aesthetic appeal. There are different potential causes of the effect but one of argued once is the correlation between typicality and familiarity, leading to the preference-for-prototypes theory. Needless to say, familiarity is built with frequency of exposure (Zajonc, 1968) that directly supports mental availability and recommended frequent, wide-audience marketing efforts. On the other hand, novelty is also proven to have positive impact on perceived aesthetics (Simonson & Nowlis, 2000).

Hekkert et al. (2003) proved the individually positive, and respectively equal, influence of both novelty and typicality on aesthetic appeal. They have also confirmed that the two forces are mostly opposite. Resulting in one suppressing the effects of another. An interesting difference between typicality and novelty is that the former tends to be automatic and subconscious process of classification of information — ‘[cognitive] tension-reducing.’ Meanwhile, novelty perception is more “controlled” and ‘tension-heightening.’ However, neither are the two complete opposites nor are they fully cancelling each other out. Additionally, the two factors can be controlled by the designers. Hence, the authors recommend to “strike a balance between novelty and typicality in trying to be as innovative as possible while preserving, as much as

possible, the typicality of the design” in order to create a successful design. This conclusion links the findings back to, and explains the premise of the core idea — Most Advanced Yet Acceptable.

3.4 Consumers’ needs and wants

*Look for a job people are trying to do, then help them do it.
Christensen and Raynor (2003)*

Christensen et al. (2016) observed that companies fail to satisfy their innovation goals and developed a theory why it is so, and how to prevent it through ‘job to be done’ (JTBD). The identified culprit is correlation – firms tend to rely on vast amount of data and draw correlations between customer profiles and their wants. JTBD establishes a different perspective. A perspective that takes into account customer’s needs and context. A trivial metaphor, that every TU Delft student is familiar with, is the one of a drill – a customer does not buy a drill to own it but to make a hole in a wall. The hole is the simplified job that the customer wanted to have done. The provided definition of a ‘job’ is “what an individual really seeks to accomplish in a given circumstance” (Christensen et al., 2016). The authors stress that the job does not necessarily need to be a simple task i.e. a hole in a wall. It could also be an experience, lifestyle change, etc. Furthermore, JTBD theory brings forward the notion that the circumstances are more important than other factors e.g., trends or customer characteristics. It is because of the fact that the job are an integral part of the greater context, bringing us back to product positioning in categories.

JTBD approach points us in two directions. Firstly, it reaffirms our belief that packaging and FMCG products have a dual relationship. On one hand, they are integrated – packaging mentally represents, enables consumption and any other interaction with/of the product. On the other hand, while packaging can provide added value (PSS), consumers buy a product for the good (the actual product) inside of the packaging, not the other way around. Secondly, JTBD suggests that the ‘job’ might be more than just the direct consumption. The ‘job’ could be being a good, caring parent who prepares nutritious meals for their children or a student who wants to organize a great party. This is where JTBD meet categories and their levels.

Let’s reconsider the cliché example of a job behind the drill and its abstraction level (depicted in Figure 44). Is the sought job the hole in the wall? In such case, a drill is competing with other products, such as a handyman who can be literally hired to achieve the job or a drill rental service, a hammer with a nail, a bradawl, a keyhole saw, etc. But what if it is not the ultimate goal? What if the individual wants to have a picture of their family present at home? Then the person could present the picture as a background on his TV or hang it as a poster using tape, blue tack, or magnets to hang it on their fridge. But what if the image is just a means to create the feeling of a cosy, family home? The job’s inclusiveness level can go on endlessly, but at some point it becomes diluted and uninformative. That is why the identification of the basic level is critical for product’s relevance.

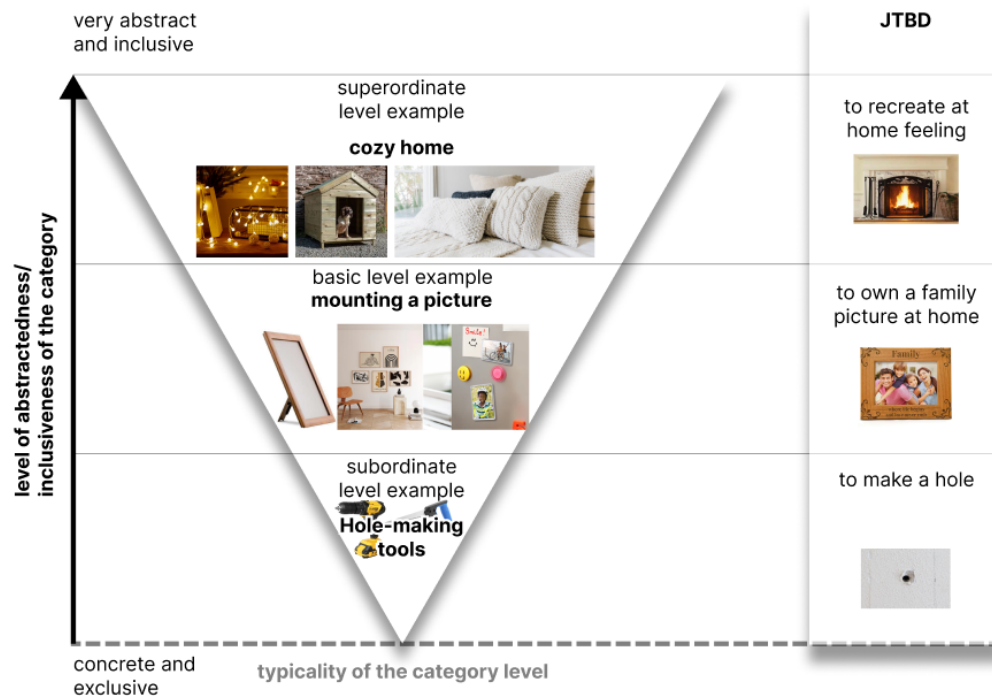


Figure 44 Relationship between category abstractedness level and levels of JTBD

3.5 Chaos packaging

Attention vs evaluation

Schoormans and Robben (1997) conducted an experiment assessing the effects of packaging atypicality on attention-grabbing and product evaluation. The grades of atypicality were achieved through a 2x3 between-subjects design. The first factor was packaging form — coffee, the assessed product, was presented in either rectangular form (typical) or cubic (moderately atypical). The second factor was colour—red (standard), part red, part orange (moderate), and orange (atypical). Their results have shown two patterns. Firstly, attention rose linearly with the general atypicality. However, product evaluation takes the shape of a flattened inverted-U, with the optimal result associated with moderate atypicality (Figure 45). Additionally, the researchers confirm that high atypicality achieves the highest levels of attention but simultaneously the lowest evaluations. Furthermore, the product was not only poorly evaluated by the study has also shown that the strong form deviation (atypicality) “pushed the package outside the regions of acceptability for the category” (Schoormans and Robben, 1997).

In another work, Schoormans and his colleagues (Blijlevens et al., 2011) looked further into typicality, arousal, and aesthetic appreciation. Similarly to the previous research, the authors found empirical evidence for a curvilinear effect of typicality on product appraisal (Figure 46). The least and most typical designs were scored lower than moderately atypical ones.

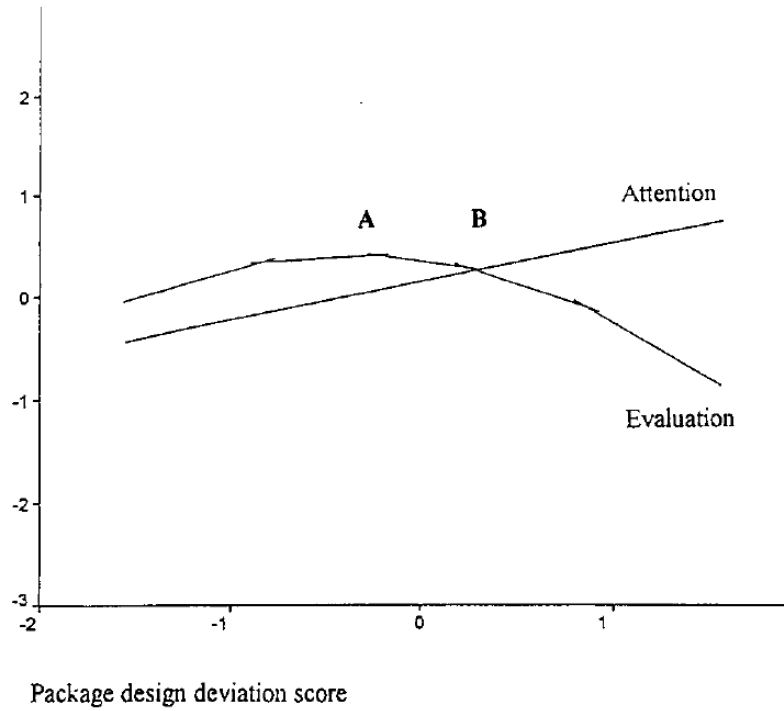


Figure 45 The impact of package deviation on attention aroused and package evaluation. *Note:* All scores are Z-scores. Accessed via Schoormans and Robben (1997)

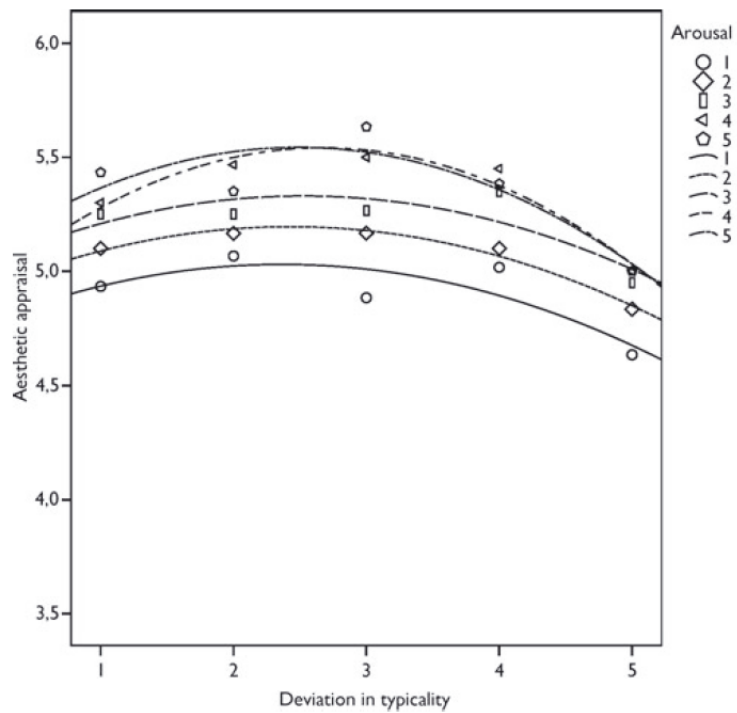


Figure 46 Aesthetic appraisal for different arousal and typicality levels of Study 2. *Note.* The scale representing aesthetic appraisal on the y-axis starts at 3.0 and not 0; Accessed via Blijlevens et al. (2011)

Atypical packaging review

As of September 2025, no research was conducted on chaos packaging per se. However, there are many existing works investigating structural packaging (shapes, complexity, etc.), its properties (weight, size, materials, etc.), and their effects on consumer perception. As mentioned before, there are two very informative papers on non-traditional packaging: “Information and involvement: the influence on the acceptance of innovative wine packaging” by Nesselhauf et al. (2017), and “Thinking outside the bottle: Effects of alternative wine packaging” by Orłowski et al. (2022). As these papers are the closest related research to chaos packaging, this section will be dedicated to summarising the papers, highlighting their findings, and noting their limitations and potential ways of complementing the research.

Beginning with Nesselhauf et al. (2017), their work was motivated by the fact that packaging innovation “faces the same barriers as any other innovation,” referring to research by Atkin et al. (2006). This sentiment once again links back to the concept of PSS (packaging/product service system) and the similarity between packaging and product design. Through their literature review, the authors listed three challenges all innovative packaging faces. The first challenge is the omnipresent, no product category exceptions, ‘innovation resistance’ linked to “the degree of discontinuity” (Ram & Sheth, 1989). Of course, in this context, “discontinuity” can be treated as earlier discussed and formulated ‘typicality’ of the category level. The second challenge is the functional and psychological barriers. The last challenge is customer profile-related. According to Laukkanen et al. (2007), mature consumers tend to mind more the potential risk and psychological barriers than their younger counterparts. The second aspect of the consumer’s profile is their involvement level. Involvement affects how consumers shop, what packaging cues matter to them, for what occasions they purchase the product, and how they consume it.

Subsequently, the authors formulated and tested three hypotheses no.1 “The consumer acceptance of the packaging innovation is inversely related to the degree of discontinuity of package design.” No.2 “Information about the innovative packaging’s beneficial features enhances consumer acceptance of the packaging,” and no.3 “The positive effect of information about the packaging on consumer acceptance is greater for consumers with low involvement than for those with high involvement.”

The experiment employed a 3 (typicality level) x 2 (information presentation) factorial between-subjects design. The three a/typical designs tested were a glass bottle, BiB, and StackTek (Figure 48). The two informational options were whether the products had additional information about benefits attached, in the form of text, in the online study, or not. Acceptance was measured through the intention to buy — “I would buy wine in this packaging” (seven-point Likert scale). At last, involvement was also measured with a seven-point Likert scale, responding to 10 questions of the wine product involvement construct developed by Hirche and Bruwer (2014): (1) I have good general knowledge about wine. (2) Other people often ask me advice regarding wine. (3) Wine offers me relaxation and fun when life’s pressures build up. (4) I take particular pleasure from wine. (5) I very much enjoy spending time in a wine shop. (6) Every now and then I visit a wine seminar. (7) Sometimes, when drinking wine, I like the intellectual challenge of complex tastes. (8) I am or would consider getting a membership in a wine club. (9) I regularly attend wine events/festivals. (10) Every now and then I participate at a wine tasting.

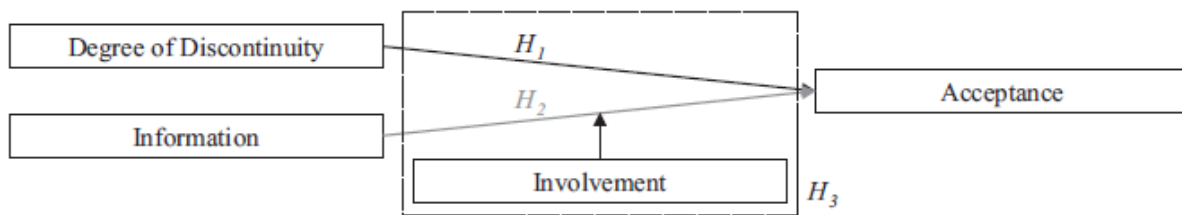


Figure 47 Visualisation of the Hypotheses of “Information and involvement: the influence on the acceptance of innovative wine packaging” by Nesselhauf et al. (2017)



Figure 48 Three wine packaging forms tested by Nesselhauf et al. (2017)

The first hypothesis was only partially supported. As expected, the bottle design was much more accepted than the less typical alternatives. However, there was no significant difference between BiB and StackTek, even though the latter is much less typical than BiB. The hypothesis about the role of additional information was not supported. Consumers did not evaluate the packaging higher when exposed to the additional information. However, the third hypothesis was supported — low involvement consumers’, constituting around a quarter of the total sample size, intention to buy increased. Additionally, the study found that low involved consumers purchased their wine mostly in supermarkets, while only very highly involved consumers shopped at wine specialized stores or wineries.

The authors name a few limitations and future research recommendations. A major limitation is the intention to buy. Even though it is a well-established indicator, it does not necessarily convert to behaviour. Additionally, the survey took place online, and people were not exposed to the physical, 3-dimensional form of the packaging designs. In my opinion, the limited realism was also present in the context of purchase and use. In an actual store, consumers are not presented with 1/3 of the shelves with bottles, 1/3 of the shelves filled with BiBs, and the remaining 1/3 of StackTek. The actual ratio would be closer to 95:5:0. Therefore, atypical forms are only exposed to the risk of non-acceptance with no reward of attention-grabbing. Secondly, the three presented packaging forms are used in completely different circumstances, especially StackTek, which serves a single portion and can be consumed outdoors without any other glasses or cups. The provided recommendation is to study the consumer experience of the packaging – the experienced functional benefits, and how the role of the packaging changes in relation to different social situations.

“Thinking outside the bottle: Effects of alternative wine packaging” is the second major paper concerning ‘non-traditional’ packaging. Orłowski et al. (2022) are driven by the fact that the wine

industry is slowly embracing new, non-traditional packaging forms, which are under-researched. And because the sales of those new entrants grow faster than the standard 750 ml glass-bottled products. Orłowski et al. (2022) base their research on communicational functions of packaging, specifically on the cue utilisation theory and judgmental heuristics. As discussed in previous subchapters, packaging design elements are perceived and interpreted by customers. Based on the cues, they develop an understanding and evaluation of the product. These processes happen fast, and heuristics, as well as categories, are used as mental shortcuts. That's why packaging forms are important – they convey a lot of information very quickly. If the form communicated the right thing, then the customer is more likely to purchase the product.

The authors define 'non-traditional' packaging as "packaging that varies from the traditional 750 ml bottle," a more context-dependent and less marketing-oriented definition than our working one. Orłowski et al. (2022) point out the potential benefits of newness but also the expected drawbacks of product category confusion. Subsequently, the authors formulated and tested, across five studies, the following research questions: (1) How does a non-traditional wine package influence consumer purchase intention? (2) Might the effect be different based on individual consumer traits? and (3) how can wine producers influence consumer purchase intention for wine sold in non-traditional packaging?

The first hypothesis, "A non-traditional (vs. traditional) packaging format will decrease consumers' purchase intention through product appeal and taste perceptions." The study deployed two forms, one traditional one non-traditional (see Figure 49), with the same branding (label design). Participants were randomly exposed to either of the two forms in the same lab environment and the same set-up. Participants were presented with a filled glass of wine, which they tried, and the tested packaging form somewhere on display in the space. Purchase intention scale developed by Jang and Kim (2015) was used to measure the dependent variable on a four-item scale. Taste and product appeal were also measured. The results showed that 'non-traditional' form had a negative effect on product appeal. The consequences are practical as product appeal positively affects taste, which has positive effect on purchase intention. The experiment was then reiterated with the difference that the participants could not taste the wine and were exposed to the images of the packaging, instead of physical mock-ups. The results were the same. Meaning that the experienced and expected wine taste had the same relationship to product appeal and purchase intention.



Figure 49 “Thinking outside the bottle: Effects of alternative wine packaging,” study 1B and Study 3 stimuli, Orlowski et al. (2022).

The hypothesis was tested again (study number 2) but with a wider range of non/traditional packaging forms (figure 51). In a pretest, the miniature bottle was rated by the participants as much more traditional than the aluminium bottle and can. The results of the experiment reflected that interpretation. The relationship between the miniature bottle and purchase intent was insignificant while for the less traditional alternatives the relationship was significant. Additionally, the negative effect was weaker for the aluminium bottle than the even more non-traditional can. This finding closely correlates with categorisation theory and the concept of image mould.

The following study investigated the difference between consumer profiles with respect to their DUP (Desire for Unique Products). The results find that people with high DUP find non- and traditional packaging forms equally appealing. H3 concerned the dynamic between packaging form and eco-friendly label and their effect on purchase intention. That part of the study is out of the project’s scope.

“Thinking outside the bottle: Effects of alternative wine packaging” sheds light on the effect, mostly negative, of non-traditional form on purchase intention, at least in the context of wine — a complex FMCG product. However, the research does not consider attention-grabbing, and the general experience at the point of sale. Additionally, the stimuli use the same label design, not allowing the non-traditional product to communicate better what it stands for. Neither was communicated the intended experience design communicated for the non-standard packaged wines.

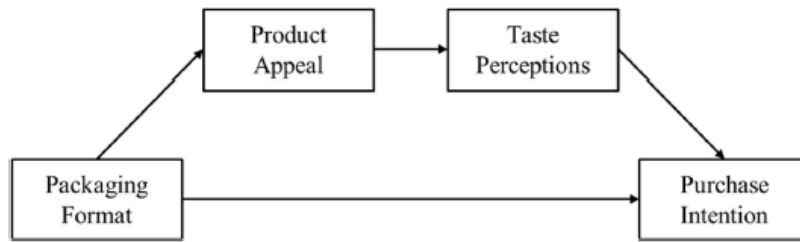


Figure 50 “Thinking outside the bottle: Effects of alternative wine packaging,” Serial mediation model. Orlowski et al. (2022).



Figure 51 “Thinking outside the bottle: Effects of alternative wine packaging,” study 2 stimuli, Orlowski et al. (2022).

“Information and involvement: the influence on the acceptance of innovative wine packaging” has direct implications for a potential chaos packaging for Lamb Weston. First of all, structurally atypical packaging is expected to be less acceptable than the current, typical alternative. There is a possibility that this can be aided by effective use of design and branding— holistic packaging design. After all, packaging is a system consisting of not only the form but structure, label and other elements, as well. Secondly, if the assumption that the frozen fries qualify as a primarily low-involvement product category, then the chaos packaging should present additional

information about the packaging's benefits. Nesselhauf et al. (2017) also hint at some promising launch strategies. For example, they argue that by initially offering the same product in two packaging forms, i.e. traditional and chaos, the consumers would potentially a) have different needs met (if the two forms offer different functional benefits), and b) gradually make consumers used to the new packaging and, hence, increase its acceptance.

“Thinking outside the bottle: Effects of alternative wine packaging” is fundamental for chaos packaging because it shows the negative impact of non-traditional packaging form on the product evaluation. The research also proves how evaluation decreases the further away from the category prototype. However, the research also find that the direct influence of the packaging is insignificant on the intention of purchase. Instead, it's mediated through product appeal and later its taste (figure 50). The research also proves that high DUP consumers will not evaluate non-traditional packaging lower than traditional ones. This insight is of limited use for Lamb Weston, as fries are low-involvement, and relatively cheap category for all demographics — making need of uniqueness has somewhat irrelevant. However, it could be useful if LW decided to target that specific niche.

3.6 Chapter summary

The conducted literature review builds our understanding of packaging psychology, perception of novelty, and about the service the packaging provides both to the greater supply chain system and the consumer. From the consumers' perspective, in most cases, the objective is to consume the right thing. What constitutes “the right thing”? The answer is dependent on the context and the consumer and can be understood through the concept of Jobs To Be Done. The consumer's journey begins with either a conscious or subconscious “job,” leading to the need of acquiring means of the “job's” fulfilment. It means that the customer needs to find, preferably as quickly and conveniently as possible, the right product at the point of sale, purchasing it, moving it to a desired location, potentially storing it, and finally consuming it. Moreover, the concept of JTBD is closely related to CEPs (category entry points). Brands must establish as many and as strong links and associations between circumstances, e.g. a “job,” and the brand.

Good packaging aids the consumer throughout the journey. Arguably the most important goal of packaging is to support “finding” the right thing. This stage relates closely to the brand's mental and physical availabilities, understanding of the JTBD, and effective communication of the inaccessible contents (product) through cues. Furthermore, packaging design straphangs the brand's physical availability through distinctive assets that are present on the pack, or even the pack itself. Non-traditional/chaos packaging has the potential to facilitate just that. The strategy poses a golden opportunity and a serious risk. Among the potential strengths are differentiation and distinction — as a product on a shelf, and a brand in a consumer's mind, signals innovation and arouses curiosity, re/shapes sensory expectations and experience, opens consumers' eyes to new means of achieving the end goal.

Furthermore, this literature review pointed towards multiple factors potentially affecting the effectiveness of the chaos packaging strategy. First of all, it is important to keep in mind that all packaging serves as a means of communication. Hence, it is to be expected that potential consumers will assess the product's usefulness and the product's ease of use, as well as ease of learning. If the perceived costs are higher than the perceived gains, the customer will turn to another product instead. However, explicitly providing all information to the customer might be counterproductive or at least not leverage the entire potential of atypical packaging. Leaving a knowledge gap but providing enough cues for the customer to connect the dots and allow them

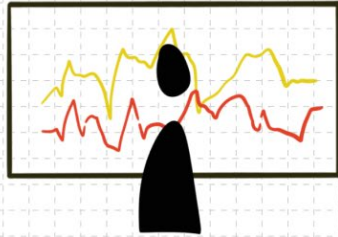
to comprehend the product on their own is likely to create a state of curiosity and positively impact the consumer's motivation to purchase. The utilisation of cues can be further taken advantage of if explicit cues are accompanied by 'meaningless' implicit ones, too.

On the other hand, excessive mystery, or in other words, too little given information, can be harmful both to curiosity (the need of learning) and to the product categorisation itself. Categorisation is built on two criteria — the level of abstractedness (the degree of the category's inclusivity) and the typicality level. Categorisation is important because it is a cognitive shortcut that saves consumers' time, energy, and thinking effort. As a result, if a product is not categorised correctly, it is likely to be ignored or sidelined. However, categorisation also brings benefits. Firstly, it creates a manageable mental map of category members and their associations. Meaning, products can be designed to fit particular groups of products and consequently be noticed by the targeted audience. Secondly, categories provide a point of reference necessary for product evaluation, especially of abstract qualities like innovativeness or originality.

The insights mentioned above highlight a missed aspect of chaotic packaging — its ability to “borrow” and “transfer” associations related to products or categories, and consequently to position the brand and the product within the category or to establish a new one. Perhaps Miraflor (2024) purposefully did not narrow his description of chaos packaging down to such detail. However, in doing so, his idea of chaos packaging is more generic and essentially refers to innovative, surprising, and atypical packaging. As a result, his description of chaos packaging could apply to a vast range of packaging design innovations, including mere label design changes on their own. On the other hand, Miraflor shares multiple examples of chaos packaged products that adopt both atypical packaging forms and use unique label designs.

Hence, if chaos packaging is to be considered a unique design and branding tool or strategy, it is necessary to acknowledge the 'non-traditional' aspect of the packaging, i.e. how a product can appropriate associations, mentally connected to the packaging form and potentially other design elements, of a different product category. The developed definition of chaos packaging is:

A branding strategy that utilises the adoption of non-category packaging. The strategy draws consumers' attention, increases visibility and the asset's distinctiveness, while appropriating associations of the borrowed category, resulting in unique product positioning adjacent to the borrowed category.



Chapter IV

Brand and market research

IV BRAND AND MARKET RESEARCH

4.1 Lamb Weston's brand overview

Context

Category and geography: As stated in the introduction, Lamb Weston is a global manufacturer of potato products, mostly frozen fries. The company operates in 31 countries and supplies its products in over 100. The global market is divided into two major regions — North America (NA) and International. LW is the market leader in North America, and its operations are more advanced than those of the “international” branch. According to the 2024 annual report (Lamb Weston Holdings, Inc., 2024), the product portfolio is wider both for clients and private consumers, with the offering extensions such as frozen potatoes and other appetisers. Additionally, LW has been active in retail longer in the NA. The company sells their products under its own name, as well as owned or licensed brands Grown in Idaho, and Alexia. One of the divisions of LW International is LW EMEA (Europe, Middle East, and Africa), based in Breda, Netherlands. This is the team I am working with.

The second way of categorising the market is with respect to sales channels and distribution. Lamb Weston offers out-of-home and at-retail (AR) products. This project focuses on the Dutch, at-retail frozen fries market from Lamb Weston's branded product perspective. However, the global competition will sporadically be mentioned, as learnings from the Netherlands might be valuable and actionable in other regions.

Competitive set: In the global, European, and Dutch context, there are two major branded competitors — McCain and Aviko. McCain has a strong presence in the UK (a major European market, where LW is competing) but none in the Netherlands. On the other hand, Aviko is the market leader in the Netherlands, hence the most critical competitor. It is important to note that Aviko's portfolio is not limited to fries, as the brand offers other potato-based frozen goods. Also, similarly to LW, Aviko is active in food service, meaning that they supply their products to other businesses, e.g. McDonald's. It is also important to point out that Aviko is owned by a larger Dutch company, Royal Cosun, which has over € 2 billion in annual turnover. At last, LW is also competing with private label products (products sold under a retailer's name). Interestingly, many of these products are manufactured and supplied by Lamb Weston. In total, the Dutch frozen fries market is virtually shared by the two brands and private labels. Some smaller competition is present in an adjacent category — fresh fries (products that are chilled and not frozen).

Brand equity and strength

Non-distinctive and Distinctive Brand Assets: In September 2024, Lamb Weston entered the British retail market and relaunched the brand in Europe (LW EMEA, 2024). The old branding and product label design differ greatly from the current, updated design. The major difference is the brand mark. The old packaging design features LW’s logo, which is now referred to as a “corporate logo.” The relaunched brand introduces itself under the same name (Lamb Weston) but with a new mark — the “consumer-facing logo” (Figure 52).



Figure 52 Old (left) and new (right) packaging designs. Accessed via spesaonline.unes.it and retailtimes.co.uk

The new packaging design and branding guidelines are consistent across the entire EU and UK portfolio. The new consumer-facing logo is an illustration of a growing potato plant, with the focus on the tuber. The colour of the logo is a bright beige with a gritty texture. The brand name and the typography remained the same — a letter mark using a thick but soft font imitating handwriting. The background colour is a non-solid solid blue. On the outskirts of the pack, the colour becomes darker, just like the typography’s fill. In the centre and behind visual elements such as the logo and fries, the background has bright blue highlights. The presentation of the product has also changed. LW’s fries used to be shown in greater abundance and served on a plate or bowl. Now, each product line features respective fries floating to the left and right of the logo. At last, the bottom of the large, central tuber (logo) is covered with a coloured label. Different lines feature different colours, which signify flavour or other properties. On top of the label, the product's name is written, e.g. “grill fries.” The last minor change was the detachment of text and icons representing preparation methods, making the overall layout simpler, cleaner, and more premium.

More assets are used outside of the packaging design domain. While the corporate slogan “seeing possibilities in potatoes” has not been changed, a new underlying theme “, feel the potato positivity”, was introduced in the most recent advertising campaign (summer 2025). The campaign features a series of video ads for the Dutch and British markets. The ads are jocular, “cute”, and communicate the fun and quality of eating LW fries. The campaign transforms the potato product (at various stages of its life cycle) into animated, playful, positive, and excited characters. However, these characters do not feature on the actual packaging.



Figure 53 New tagline



Figure 54 Snapshots from various LW ads

Mental availability: Since this project investigates the role of packaging form (atypicality) and its impact on product and brand perception, no primary research was conducted to measure LW's

mental availability performance. Additionally, this report does not disclose any LW’s confidential information. As a result, the metrics of mental availability, such as mental market share, mental penetration, and network size (Romaniuk & Sharp, 2021), cannot be determined. Nevertheless, it is possible and useful to estimate the potential CEPs (category entry points) advocated by Romaniuk and Sharp (2021). Additionally, Strategic Brand Management by Keller (2012) offer a plethora of other relevant tools to estimate the brand's strength and its presence in consumers’ minds.

CEPs can be identified and categorised using the W framework. In an attempt to base this exercise on people’s actual experiences, without conducting the primary research, internet forums, and social media were explored (Reddit, zegmaaryes, zwangerschapspagina, bokt, Instagram, and Facebook). Selected responses are presented in Table 1. This quick exercise yields interesting insights. Depending on a consumer profile and their “jobs” (needs and wants), fires can be either a luxury snack for social occasions or a cheap, and quick last resort (e.g. after a very long and tiring day). Interestingly, many reported that they have either a specific day every one or two weeks (“frites Friday”) or a recurring occasion (e.g. visiting parents and having a BBQ), tapping into rituals, childhood, and nostalgia. Many respondents claimed that they own deep fryers. It is supported by existing market research, for example, in 2010, 36% of Dutch and 34% of British households had a deep fryer. Though it appears that the number of such households is shrinking, in 2015 the number dropped to 28% and 29% respectively (Bord Bia, 2015; Bord Bia, 2017). The amateurs of deep frying are very vocal in the Netherlands, one stated “Frituro ergo sum” — I fry therefore I am.

On the other hand, this quick research has shown certain barriers and indirect competitors to Lamb Weston and the premade frozen fries’ category in general. Specifically, some consumers and/or their grandmas make the fries by themselves. The motivation varies; sometimes it is just the ritual and tradition, sometimes it is to control the ingredients and healthiness, and at times, people just want a certain experience. The list of CEPs is expanded by other potential categories and brand associations (Figure 55), with a narrowed version for core brand associations (Figure 56) Keller (2012).

Table 1 Examples of CEPs for fries made at home.

When	Where	With whom	How feeling	Why
Friday evening after work	At the kitchen table	With partner and kids	Cosy, end-of-week “weekend is starting” feeling	Cheaper and easier than going to the snack bar with the whole family.
Saturday night “fakeaway”	In front of the TV	With partner	Relaxed, a bit indulgent	Save money and eat healthier
Weekday quick dinner	dining table in the flat	With housemates	Rushed but content	Throwing air fryer fries is the fastest way to feed four people.
Late Friday night	Sofa with a tray	Alone	Comforted, like a treat just for me	Can’t justify ordering delivery just for myself
Sunday lunch	At the parents’ kitchen table	With parents and siblings	Nostalgic, like being a kid again	My mum still makes proper pan-fried chips
During a football match	in front of the TV	With friends	Excited, slightly guilty	Cheap to share and + refilling the air fryer.
Hungover Sunday	On the sofa with a blanket	with a partner or alone	Sleepy but satisfied	Greasy comfort food without leaving the house

Summer evening BBQ	In the garden	With family or friends	Social	Oma always makes friet herself
After a long commute	Diner table	Alone	Drained but comforted	I get home late and can't be bothered to cook

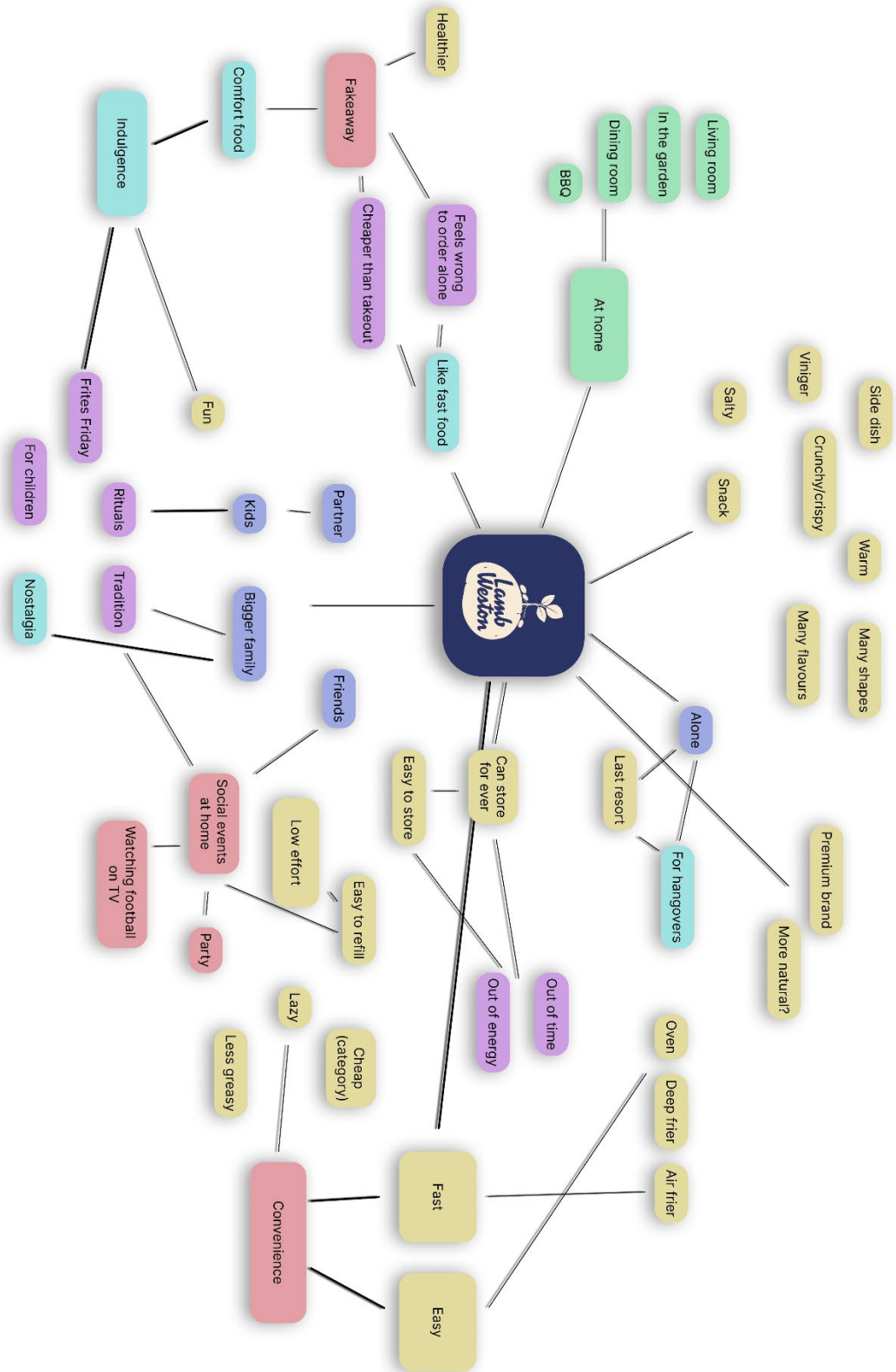


Figure 55 Map of category and brand associations



Figure 56 Hypothetical core brand associations.

The hypothetical LW core brand associations visualisation is based on the general category associations, opinions on fries (discussed and shared online), as well as the communication curated by the company itself. The overall opinions on social media and online forums are positive, e.g. a video review by Bald Foodie Guy (2025) was impressed by the product but observed that without a discount, the product was pricy (over £3). Comparisons between Aviko and Lamb Weston tend to be positive, too. However, this conclusion is formed only on a few shared opinions, such as “[...] the Aviko ones had a weird aftertaste we didn’t like. Lamb Weston has been the go-to...” (Ysrw, 2025). Interestingly, across multiple online discussion threads, Aviko was always mentioned more frequently, suggesting that the competitor’s mental availability is stronger than of Lamb Weston.

While the above-stated associations might vary or even be incomplete, I noticed some untapped potential, unique selling points. Lamb Weston’s target group are medium and high-earning young people, potentially with children. This group has intense social and work lives and looks for both convenience and quality. It makes sense that Lamb Weston focuses their efforts on building “responsive fun” associations. Unsurprisingly, LW EMAS’s backstage mantra is “responsible potato enjoyment.”

Physical Availability: Lamb Weston products are present in most supermarkets, including Albert Heijn, Jumbo, Dirk, and Plus. However, Albret Heijn to go (the smallest type of an AH store)

does not offer any frozen goods, except for ice cream. Discounters like Aldi or Lidl do not offer the brand, even though Aviko has some presence there. While the food category is always located in the frozen aisle, the products can be found in two types of freezers. The vertical ones with shelves — Upright display freezer, or just a standing freezer, and a horizontal one — chest or aisle freezer. Product placement is especially important in the context of the standing freezer, as the products located at the eye level receive the most attention, ones at the hand level are easiest to grab, and those at the foot level are more visible to children. Lamb Weston products usually occupy three to four shelves — taking the either the entire top or bottom half of the freezer. Meanwhile, Aviko fries to and other frozen products tend to hold two- or even three-fold the shelf space, as seen on Figure 57.



Figure 57 The frozen section in Albert Heijn and Dirk supermarkets

At last, it is important to note that standing freezers often cause fries in flexible packaging to crumple, collapse, and fold, creating a messy and obscured presentation. Moreover, the glass doors can fog up, further limiting product visibility. As a result, some label elements may no longer be visible or legible to consumers, potentially disrupting their search for the intended brand or product. This may either demand greater effort from the shopper (to find the wanted product) or, more likely, lead them to substitute the intended product with a more easily accessible alternative (Romaniuk & Sharp, 2021).



Figure 58 LW crumpled bags in AH.

4.2 Market and product analysis

Portfolio: Lamb Weston is a unique market player. As a retail brand, LW offers fries and only fries. However, the brand's portfolio takes the fries to another level, as some lines have not only diverse flavours but also special shapes, e.g. Dippers and Twisters (Figure 59). Interestingly, regardless of the format (size) in Albert Hein all LW products are priced exactly the same (€2.99).



Figure 59 LW's British and European portfolio

Market definition and levels of competition: Within the Dutch frozen potato market, Lamb Weston competes with various products and brands, across multiple levels (Figure 60). At the

product-form level, the brand faces direct competition from other frozen fries — mostly Aviko and private brands. For example, Albert Heijn offers curly fries —a direct competitor to LW's Twisters (Figure 59). Moreover, an extension if the level are members like frozen sweet potato fries, which share the same format, storage, shelf space, and usage occasion. At the broader product-category level, competition expands to other frozen potato and potato-based side dishes such as wedges, aardappelblokjes, kroketten, as well as fresh-cut refrigerated fries. At the generic level, the brand primarily competes with any warm, convenient side dish that fulfils a similar meal need-state (job to be done), such as frozen frikandles, pasta, or fish sticks. Since fries can be considered a snack food, the generic competition could be expanded by garlic bread, chips, and other finger food. Finally, at the budget level, Lamb Weston competes with all products and services that draw from the same household food expenditure, ranging from ready meals and meal kits, pizzas, plain potatoes, to takeaway food.

Levels of competition are directly correlated with category entry points — different consumers purchase and enjoy the product for different reasons and occasions. For a busy and tired consumer, fries are a convenient staple which competes with premade mashed potatoes. For another, who is about to host a flatparty, the product is a great warm snack that can be shared among the guests, but so are mozzarella sticks. For those who consider fries a comfortfood, a competing product could be icecream. If LW intends to grow, they will need to either win over the existing (frozen fries) category buyers or encourage non-buyers to try their products.



Figure 60 Levels of competition (only Netherlands)

4.3 Competitors

Price mapping: In the most direct competition (product form competition) in both the UK and Netherlands, LW's fries are the most expensive ones. In the Netherlands, more expensive products can be found but further down the category, for example Aviko's frozen sweet potato fries and fresh fries by Friethoes. In the UK, McCain's microwaveable "quick chips" are pricier, too.



€1.89/kg
€1.49



€3.32/kg
€2.49



€3.45/kg
€2.59



€3.99/kg
€2.99



€4.98/kg
€2.99



€1.33/kg
£1.99



€2.78/kg
£2.5



€2.89/kg
£2.6



€4.62/kg
£3.7



5/kg
£3



€7.5/kg
£3

Competitors' positioning: Since private label products have shelf space secured, compete mostly on price, and are linked to the branded house—the retailer's brand, they neither have the need to or have freedom to curate product-specific positioning. Hence, brands need to either compete on quality, innovation, or narrative (branding). In the Netherlands, the only real competitor and the market leader is Aviko. As later discussed, some consumers claim that one brand tastes or feels better than the other, but there are no drastic differences in quality between the brands. Therefore, the only means of building product differentiation and brand distinctiveness is through innovation and effective communication.

Aviko's advertising appears to have slowed down in recent years. In the 2000s, they advertised their "grandma fires" (Figure 61). In 2010s, Aviko launched "Fries from home" (Friet van 't Huis) advertising campaign. In a series of TV advertisements, three reappearing male friends have far too much fun and get into trouble just to be saved by Aviko's fries. It can be assumed that Aviko's positioning was meant to target families, especially dads who'd rather act silly and have fun than put effort into cooking. Simultaneously, Aviko tries to communicate their heritage, tradition, and family moments.



Figure 61 Aviko: GRANDMA'S FRIES, accessed via adsspot.me



Figure 62 (Above) Friet van 't Huis (<https://www.youtube.com/watch?v=BudB5CPW584>) and (below) AVIKO SuperCrunch (<https://www.youtube.com/watch?v=jl7sphDKjhl>) commercials

Aviko's recent social media activity paints a slightly different picture. Most of Aviko_nl's posts on Instagram focus on the diversity of different potato products, their preparation and presentation. Many of the posts feature a chef who prepares elaborate dishes, using Aviko's products. Their communication focuses much more on the food itself rather than fun, silliness, friends or family.



Figure 63 Aviko's Instagram

The two brands clearly compete on similar emotional and functional product benefits. Both aim to communicate the quality and crunchiness of their products. While Aviko has recently moved away from using silliness and humour, it has historically positioned itself as fun and carefree. This means that the more playful recent LW campaigns might evoke memories of Aviko among older consumers. Additionally, Aviko still offers their “home fries”, which are labelled as “OMA's” or “OPA's” (grandma's/grandpa's), tapping into the feelings of nostalgia, tradition, and rituals.

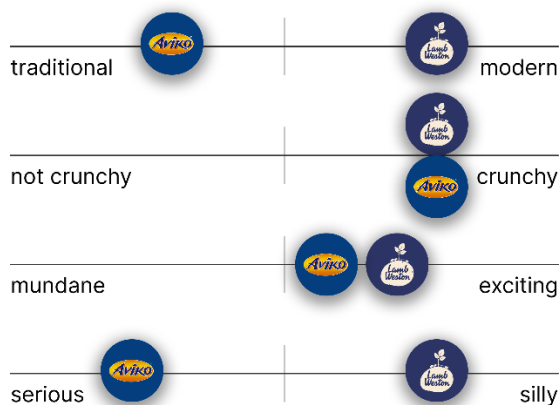


Figure 64 Comparison of the brands across selected benefits.

Innovation: Aviko’s strength is a very wide portfolio reaching outside of the fries’ category. In 2023, the brand expanded its “snackables” by adding Chilli Cheez Bites and Jalapeno Nacho Cheese Bites (Aviko UKI, 2023). This year (2025), the company introduced Premium Crunch fries with skin on (Potato Gazette, 2025).

While McCain is not active in the Netherlands, the company has a major global presence and often comes up with innovations. One of such products are Shake Shake Fries. This product seems to be on and off the British supermarket shelves, making its first appearance around the end of 2016. This product (Figure 65) is interesting because it leverages the functional role of packaging to deliver a unique experience — the consumer must shake the bag to spread the added seasoning. Recently, the brand relaunched and seemingly withdrew the product in new and unique packaging (pouch pop). Simultaneously, this year, McCain has also launched another snacking potato product in the same packaging (Creative Salon, 2025) — Vibes, which is still available in the stores.

McCain clearly sees the opportunity in packaging and how it can enhance distinctiveness, differentiation, noticeability, and add value to the user experience. In chapter 2, another McCain’s packaging innovation was mentioned — the FFS standing bag for their Super Fries. However, McCain’s innovation follows a pattern. The packaging experiments rarely affect established and mainstream product lines. Instead, the company applies the innovation to smaller lines (Shake Shake or Super Fries) or straight away new and innovative ones (e.g. Vibes). Another observation is that the less typical packaging is always applied to more specialised and unique lines, which in turn are priced higher. Hence, in comparison to pillow bags, atypical packaging might be a means of communicating premiumness.



Figure 65 McCain Shake Shake fries, accessed via dba (<https://effectivedesign.org.uk/projects/2018/mccain-shake-shake-fries>)



Figure 66 Updated Shake Shake packaging, accessed mccain.co.uk



Figure 67 McCain Vibes, accessed via thegrocer.co.uk



Figure 68 Snapshots from McCain Vibes ad, accessed via <https://www.youtube.com/watch?v=rfak-CuWXvo>

Comparison of (non-) Distinctive Assets: Not every design element is inherently distinctive to a brand. Some elements may simply signal the broader product category or subcategory—or, even worse, resemble those of a competitor (Romaniuk, 2018). For instance, if I asked you to buy *the blue frozen fries*, you likely wouldn't know which product I meant, because most brands in this category use blue packaging (such as Aviko and Lamb Weston). This means that the colour blue—regardless of the shade—is a relatively weak brand asset. The main point of differentiation between these two brands lies instead in their layout and product presentation. Aviko uses a more conservative and conventional design approach, typically featuring a photograph of the prepared product served in a bowl or on a plate, often accompanied by cues such as spices or sauces arranged around the fries. Meanwhile, LW suspends the individual fries and makes them “float” on both sides of the logo, which is the central piece, and of course, another distinctive asset. Both logos refer to potatoes. Aviko's shape is simpler, just an oval that could symbolise a potato. Lamweston uses an illustration of a potato plant, with a focus on the growing tuber that occupies most of the pack's front. Another difference in typography, Aviko uses a sharp, often presented in a tilted position, and dynamic font for their logo. Lamb Weston's font is soft and imitates handwriting. At last, but most importantly, both brands use only pillow bag packaging for their products. As earlier pointed out, the form often leads to decreased visibility in a standing freezer, meaning that the two blue brands could be confused or missed. Additionally, since every single category member uses the packaging form, none can claim it as their own asset.



Figure 69 Comparison of pack design elements

4.4 Consumer research

As mentioned before, I scouted the internet forums and social media to explore consumers' opinions on the brands and fries in general. The insights gathered were generally positive about

both brands. However, a lot of the general discussion was about product preparation. Many consumers appear to be dissatisfied with crunchiness, as they overfill oven or air fryer trays. However, I could not learn more about purchase behaviour, product preferences or even confirm the assumption that a pillow bag is the image mould for frozen fries.

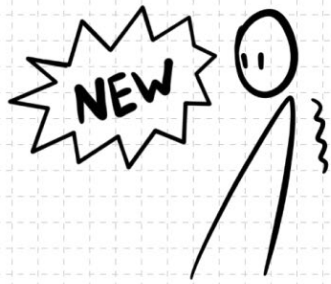
A trial workshop: To develop a better consumer understanding without committing too many resources, before the main studies and experiments, I conducted a “trial/scouting” workshop. The workshop consisted of a series of questions about how often the respondents have fries, what kind, what they like and/or dislike about them, etc. Additionally, the participants had two drawing tasks. They were asked to depict a French fry and “frozen fries from a store.”

Out of 21 responses, 18 depicted fries packed in a pillow bag. Two respondents misunderstood the question and drew just the product, different types of fries (curly, French, wedges, etc.), which they would expect to find in a store. One person, based in Hong Kong, drew fries packed in a box. While this exercise holds no statistical value, it supports the assumption that most consumers associate fries with the pillow bag packaging.



Figure 70 Trial workshop results (draw fries from a store)

The qualitative findings are depicted on the value proposition canvas (Figure 60). In general, respondents really enjoy the crispiness and crunchiness of the fries. Another appreciated quality is the ease of preparation — set it and forget it. A consumer can start an oven or air fryer, fill it with the frozen product, and leave it for 15/20 minutes and do something else in the meantime, for example, watch a video or focus on cooking another dish. Saving time and convenience are some of the most valued product category properties. On the other hand, the majority of participants stated that they really disliked soggy fries. Some responses complained about either too strong or too little seasoning. Many respondents have an aversion to the fattiness/greasiness of the product. This is one of the reasons why some recommend air fryers, though they warn that it is easy to under- or overcook the product. Another common response was that the participants would avoid the product and have it only seldomly due to its perceived unhealthiness.



Chapter V **Identified opportunities**

V IDENTIFIED OPPORTUNITIES

5.1 Consumer insights and trends

The secondary market and preliminary user research led to multiple insights into category buyers' behaviour, as well as initiatives undertaken by the competition. First of all, as one of the senior LW employees said, the Dutch frozen fries' aisle is the same as 75 years ago. Meaning that products are innovated incrementally at a slow pace, and, from the consumers' perspective, there was no packaging innovation at all. Secondly, consumer feedback was interpreted and translated into a value proposition canvas (Figure 71), which highlights consumers' JTBD (jobs to be done), gains, and pains. The overall "job" is to have an enjoyable, somewhat indulgent, snack or a side dish, for a plethora of situations (including dinner for kids, or having friends over for a party), that is low effort cooking, and time-wise. Pains and gains, or in other words — barriers and drivers, relate to the product's functional and emotional properties (benefits and disadvantages). Aviko and LW mostly compete on price and the functional benefits like flavour, shapes, and crispiness. The emotional benefits of the fries are largely similar, e.g. making children happy, or being a good host. Furthermore, both brands face similar pains. For example, many consumers despise soggy fries. A potential answer to the issue would be a packaging that would assist in baking the fries in an oven or air fryer, or help them ventilate better after the preparation — when served. Another identified pain and a barrier is the greasiness and the perceived unhealthiness of the category. Some consumers claim that they do not purchase the category as they often feel bad or guilty after eating fries. Other consumers just dislike the greasy sensation, while some actually appreciate the quality — especially in the context of heavy drinking and the aftereffects.

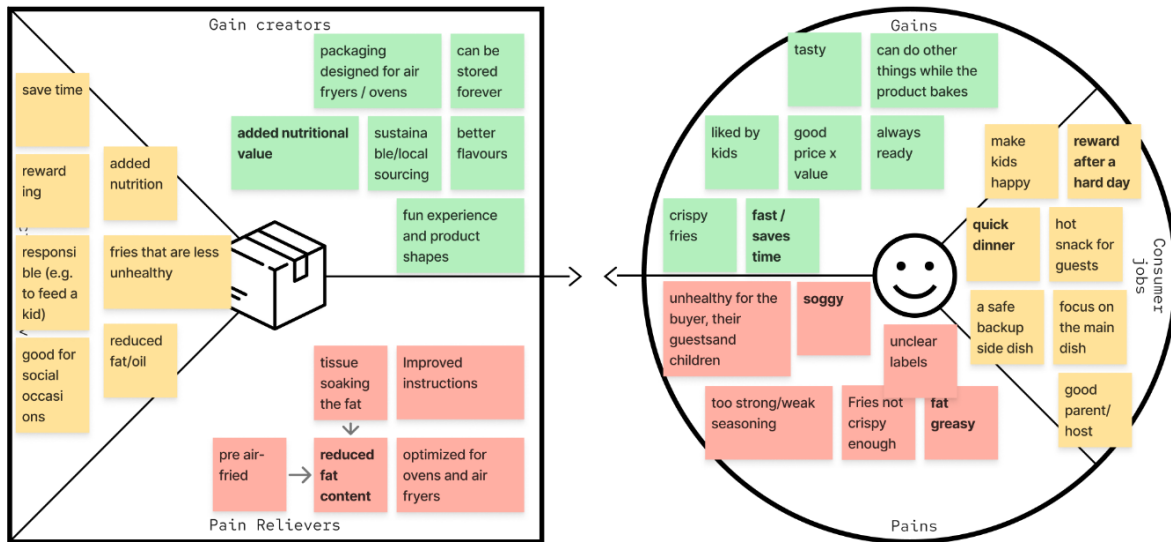
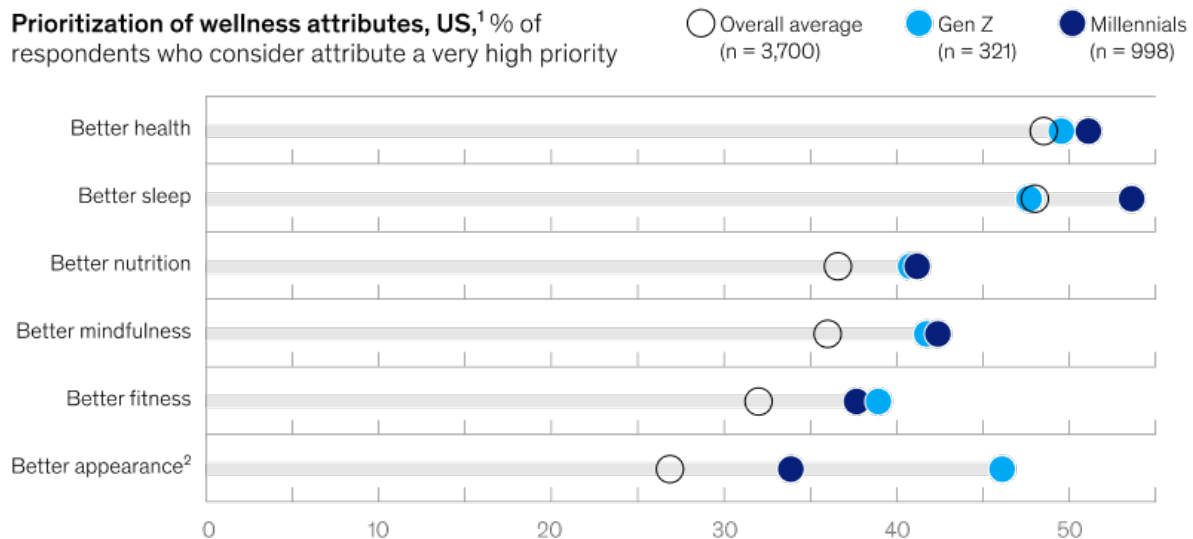


Figure 71 Value proposition canvas. Larger version in appendix 10.5

Since LW’s target audience is relatively mature and well off (well-earning young and middle-aged adults, often with kids), it is likely that they are even more concerned with health and wellbeing than an average consumer. After all, “the more advantaged individuals are, the better their health” (Adler & Ostrove, 1999). Moreover, “to millennials and Gen Zers, wellness has become a daily, personalized practice” (McKinsey et al., 2025). Wellbeing is not just a trend but a reality of the younger generations, which consistently prioritise wellness (Figure 61). Not acknowledging the phenomenon is not only a missed opportunity but also a strategic threat for the entire category.



¹Question: How high of a priority do you place on the following attributes?
²Through skin care, makeup, and other cosmetic enhancements.
 Source: McKinsey Future of Wellness Survey, Nov 2024

Figure 72 Accessed via McKinsey et al. (2025)

These pro-wellness attitudes converge into purchasing power. In the same report, McKinsey states that the two generations (36% of the total US adult population) drive more than 41 per cent of the annual wellness market. One of the sought wellness categories is “functional nutrition” —

food and beverage products that “claim to deliver health benefits” (McKinsey et al., 2025). Interestingly, the perception of healthy food has evolved from food that does not contain “unhealthy” components (e.g., saturated fats or sugar) into food which contains or is enriched in beneficial components, e.g. protein. As a matter of fact, plenty of FMCG brands have already adapted or emerged to meet the need. Critically, chips, a competing product category, have also embraced the change. “Healthier” chips with reduced fat content are no news (Figure 73), but “healthier” chips with added protein are (Figure 74).



Figure 73 Examples of products with reduced or replaced “unhealthy” components: Coca-Cola, Oppo, and Lay’s



Figure 74 Examples of products with added “healthy” components: Snickers, Melkunie, Body & Fit

5.2 The opportunity

Market gap

In conclusion, Lamb Weston faces multiple barriers to growth. The brand cannot outcompete private label products in price, while Aviko’s and LW’s product quality is similar. Simultaneously, the Dutch market is stagnant, with only incremental product innovation and no packaging differentiation initiatives at all. Moreover, the consumer profiles are changing, and some of the consumers’ functional and emotional pains and needs have evolved, leaving an unmet gap among Gen-Z and millennials.

As a result, it appears that LW has a great opportunity at hand — healthier fries. The company can choose two approaches to delivering such a product. The first option is to reduce or replace the unhealthy components, i.e. fat. The second option, more relevant to the target audience, is to add nutritional value (e.g. protein) to the fries. Of course, a combination of the two might pose an even stronger proposition. Regardless of the approach, the end result would be a product line extension offering a combination of functional and emotional benefits, or at least ‘pain relievers,’ to the consumers. Such extension, although unorthodox, would be consistent with LW’s claims of high quality, responsibility, and innovativeness. As wellness is proven to be more than just a

temporary trend but a priority for the younger generations, embracing the opportunity would most likely increase product/consumer relevance and future-proof the brand. Furthermore, such a line could lead to the creation of a strong and highly unique CEP — linking Lamb Weston and wellness in the mind of the consumer. However, LW must be wary of overpromising and overselling the functional benefits, as unmet expectations lead to highly negative feedback or a false narrative can severely damage the brand, its credibility and authenticity (Morhart et al., 2014; Beverland, 2005). While an unsatisfactory experience leads to a highly negative consumer response to the product itself (Danner et al., 2017).

As McCain has shown, unique packaging is a valuable tool to communicate and deliver a product's added value. For example, a bag that is more ergonomic for shaking (Sha Shake fries), or one that communicates that the product inside is a snack (Vibes). Additionally, unique packaging is a medium of differentiation — signifying an additional property or feature of the product inside. Furthermore, unique packaging can become a distinctive asset for a brand or a sub-brand, i.e. a product line extension, making it easier for the consumer to remember and find the product by increasing mental and physical availability. At last, an observation must be reiterated — the typical pillow bag packaging has very strong advantages, such as optimised logistics, very low packaging-content ratio, recyclability, etc., and even innovative and risk-taking brands like McCain use it for most of its portfolio. However, when a new opportunity arises, McCain does not hesitate to tap into potential opportunities and deliver new product types in atypical packaging for the greater (basic level) category.

Design and conceptualisation

Protein cues: The identified market opportunity lies in functional foods. As a result, I decided to pursue to idea of fat-reduced, protein-enhanced frozen fires. The protein-rich product category is wide and incorporates a plethora of products, as shown earlier in Figure 74. The design language used is usually bold, modern, and dynamic, with vibrant colours, frequent use of shiny silver and/or black background, accompanied by strong statements. Of course, there are products and brands, especially the vegan ones, that associate themselves less with energy, masculinity, and “hyperactivity” and more with balance and nature — incorporating softer and warmer colours (Figure 75).



Figure 75 Different brands of protein bars; Accessed via jumbo.nl, powersupplements.nl, and koro.com

While the label design elements are important to communicate, brand and position the product, from this project's perspective, packaging form is of most interest. Protein-enhanced products tend to have the same packaging form as the other members of the basic category, e.g. protein chocolate bars are packaged in the same way as normal chocolate bars — in a classic stickpack, aka flow wrap, packaging. Hence, if the objective (protein fries) of the packaging is to communicate the added protein content, then the inspiration cannot be drawn for the category's derivatives (subcategories) but the purest representation of the quality — protein powder. The protein powder category is not uniformly packaged, but the range is narrow and well defined. The

most frequent packaging forms are DOY bags, tubs, flat-bottom bags, and drums. The last two are the most unique and popular in the category.

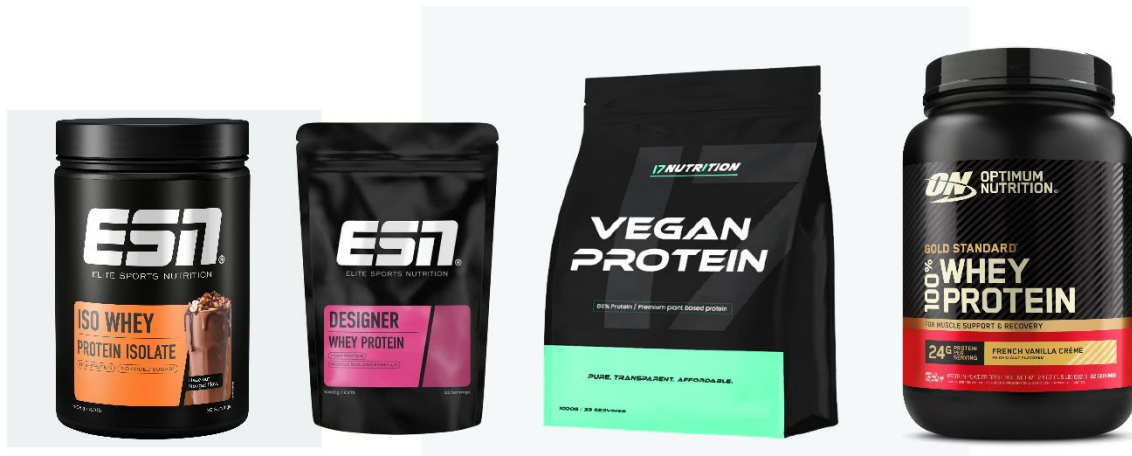


Figure 76 Protein powder in a tub, DOY bag, flat bottom bag, and drum (left to right); Accessed via nl.esn.com, 17nutrition.com, bodyandfit.com

While the flat-bottom bag form is completely atypical for the frozen fries' category, it still shares some similarities with the pillow bag packaging. Both are bags, made of flexible, light foil, and with a rectangular silhouette. It means that with respect to storing the product in the freezer, the consumer can expect more or less similar behaviour. Due to gussets, added material, creases, and the even base, the flat bottom design is much sturdier and can remain standing without any external support — because of the property and the sake of simplicity (for the reader), from this point onwards, the bag will be referred to (inaccurately) as “standing bag.” On the other hand, a drum is completely strange to the product category. It is rigid, round, and heavy. On top of that (pun intended), the form has a visibly pronounced resealable screw lid, adding an atypical functionality. As a result, the three packaging forms hypothetically create a spectrum of typicality, with a pillow bag being the most typical, and the drum the least.

Conceptual design: For the sake of the upcoming experiment, the packaging design must be consistent and differ only by the intended and controlled manipulations. Since the experiment focuses on the form packaging, the designs must enable comparison between label designs and packaging forms. Additionally, to control for brand familiarity, the product designs must feature an unknown brand to the consumers/subjects.

Therefore, I developed a fictitious brand “O’Tato.” The brand’s name mimics McCain but replaces the Scottish Gaelic’s “Mc” (son of) with Irish “O’” (descendant of) and adds “Tato” — shortened “potato.” The brandmark is somewhat similar to Aviko’s — a yellow oval shape, but partially cut into fries. The inspiration are Lamb Weston’s attempts of reminding consumers what fries are made of, potentially one of the reasons behind LW’s new logo depicting a tuber. At last, I decided on the lettermark’s and theme’s colour to be blue, as in the Netherlands it is the predominant category colour.



Figure 77 Fictitious brand/logo O'Tato

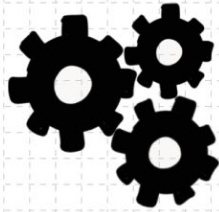
The label design was purposefully made minimalistic in order to reduce design noise and make the design more consistent across all experimental variants. The protein fries label design was reiterated multiple times to achieve a final, intended, clear, and controlled look (Figure 78). Finally, the ready label designs were applied to the packaging form (Figure 79)



Figure 78 Iterations of label design



Figure 79 Visualisation of the non-protein packaging



Chapter VI

Hypothesis development

VI CONCEPTUAL FRAMEWORK AND HYPOTHESIS

6.1 Background

Theoretical background

The literature review has established the fundamentals of packaging, and by extension, chaos packaging. First and foremost, packaging and (FMCG) product are two separate entities, but strongly integrated, and seemingly seen as one by the consumers, until the product's final stage — disposal. Secondly, consumers evaluate products based on their past experiences and expectations. Those are shaped through product attributes, which are communicated via cues. Since FMCG products, especially consumables, need to be protected from spoilage, contamination, etc., they must be enclosed within packaging. As a result, products' cues are inaccessible or only partially accessible (e.g., the colour of a juice seen through a transparent glass of a bottle). Therefore, packaging must step in to communicate the product's qualities. The cues represented by packaging are inherently extrinsic (not directly communicated/owned by the product itself), and usually exteroceptive (experienced before consumption with “external” senses like vision). Additionally, all applicable cues can be further divided into either explicit or implicit. In the context of the identified opportunity (protein fries), the packaging form can be considered implicit. However, it is not clear whether consumers will react to it as ‘meaningful’ or ‘meaningless.’ It is expected that those consumers who are familiar with protein products would associate the packaging in a meaningful way with the protein aspect of the fries. On the other hand, the protein design label will consist of explicit cues such as “protein” text and health claims.

Managerial context

In this chaos packaging research, I concluded that the differentiating aspect of the strategy is not a chaotic nature but a well-curated association borrowing of different packaging formats. The identified opportunity for Lamb Weston is “healthy,” or at least “healthier” foods. Foods that are either less detrimental to the consumer's health (e.g., reduced fat content) or ingredient enhancement, i.e., protein-infused fries. This opportunity resonates with Lamb Weston very well, as the brand's (EMEA) motto is “responsible potato enjoyment.” Furthermore, this opportunity enables Lamb Weston to introduce their innovative product using the earlier discussed subtyping approach — creating a new sub-category. As a result, applying non-traditional packaging makes even more sense to differentiate not only the brand but also the introduced category, and ultimately, motivation and willingness-to-pay models.

Research goals and questions

The three key research goals are formulated as following research questions:

Research question No.1: To what extent does the degree of packaging atypicality (“chaos”) influence consumers’ ability to correctly recognise and comprehend the product’s category (frozen potato fries)?

Research question No.2: How effective is chaos packaging in transferring or “borrowing” perceived attributes and associations from the categories its packaging format typically represents (e.g., jars, standing pouches) to the focal product?

Research question No.3: How does chaos packaging influence consumers’ affective responses and perceived value of the product (product evaluation \times usefulness \times attention)?

To answer these questions and further assess the strategy, my primary research is based on the following key theories and concepts: categorization theory, familiarity (of both, but separately, product’s category and of the borrowed category), and cue utilization theory impacting mostly product’s category accuracy (rate of correct product category recognition); attention and curiosity theory; JTBD theory (linked to consumer’s consumption and lifestyle profile) and perceived ease of use and of usefulness; congruence theory (both, but separately, visual/design match, as well as fit between product, packaging, and the category).

6.2 Hypothesis development

Impact of packaging form typicality on product evaluation

Packaging typicality plays a key role in how consumers categorise and evaluate products. According to categorisation theory and processing fluency theory, typical forms are processed more easily and lead to higher categorisation accuracy and positive evaluations, while atypical forms challenge expectations, attract attention, but reduce perceived recognition and usability.

H1a Packaging form atypicality decreased categorisation accuracy, perceived ease of use and congruence.

H1b Product appeal follows an inverted-U pattern, with moderate atypicality being most appealing.

H1c Packaging form atypicality increases attention-grabbing, curiosity, transfer of associations, and perceived usefulness.

H1d Higher attention leads to higher curiosity, which positively predicts adoption of associations, which in turn positively influences appeal.

H1e Categorisation accuracy positively predicts appeal.

H1f PEOU has a positive relation with perceived usefulness, which has a positive relation with product appeal.

H1g Congruence moderates the interaction between curiosity and appeal

Impact of packaging form typicality and label explicitness on product evaluation

Atypicality, attention, and curiosity: From a novelty–curiosity perspective, visually and structurally atypical stimuli capture attention and trigger exploratory motivation. Consumers

exposed to less typical packaging are expected to pay more attention and experience higher curiosity, linking the concept back to the marketing concepts of ‘stopping’ and ‘holding’ powers.

- H2a – Less typical (more atypical) packaging forms will generate greater attention.
- H2b – Greater attention will increase curiosity about the product.

Curiosity, association adoption, and appeal

Curiosity facilitates the activation of conceptual links between the product and other familiar categories. When consumers adopt these new associations (e.g., perceiving fries as “protein-rich”), their affective evaluation of the product (potentially) increases.

1. H2c – Greater curiosity will strengthen association adoption (the degree to which the product is perceived as protein/fitness-related).
2. H2d – Higher association adoption will enhance product appeal.

Congruence

Theory on congruence suggests that when the visual form and informational message align coherently, processing is more fluent and affective evaluations improve. It is expected that perceived congruence has a positive impact on product appeal.

- H2e – Congruence (of packaging design) is positively influencing product appeal.

Category recognition and fluency

Category-based processing and fluency theories suggest that designs that deviate from the prototype reduce category recognition, increasing cognitive effort and lowering affective responses. Accurate categorisation, conversely, increases evaluation fluency and appeal.

- H2f – As packaging becomes less typical, category accuracy (correctly recognising frozen fries) will decrease.
- H2g – Higher category accuracy will positively affect appeal by increasing processing fluency.

Ease of use, usefulness, and appeal

Drawing on the user acceptance of technology by Davis (1989) and radical design acceptance by Mugge and Dahl (2013), perceived ease of use, linked with perceived ease of learning, enhances perceived usefulness and, ultimately, product appeal. Atypical packaging is likely to undermine usability, indirectly reducing perceived value.

- H2h – More atypical packaging will reduce perceived ease of use (PEOU).
- H2i – Higher PEOU will be associated with higher perceived usefulness (PU).
- H2j – Both PEOU and PU will positively influence product appeal.

Protein cue effects

Based on cue utilisation theory, explicit extrinsic cues (e.g., protein claims or visuals) increase attention and guide interpretation. Protein cues should therefore enhance perceptions of functionality and healthiness, stimulating curiosity and association adoption.

- H2k – Presence of an explicit protein cue will increase attention to the package.
- H2l – Presence of an explicit protein cue will increase curiosity about the product.
- H2m – Presence of an explicit protein cue will increase association adoption (stronger “protein/fitness” perception).

Individual differences as moderators

Due to the JTBD theory, it is expected that individual orientations toward fitness or protein consumption affect how people interpret health-related cues. The cue’s effectiveness depends on how personally relevant it is.

- H2o – The effect of the protein cue on association adoption will also be stronger for consumers with higher Borrowed-Category Familiarity (BCF) with protein products.

6.3 Conceptual framework

I test my hypotheses through two experimental studies. Study 1 tests the set of H1 hypotheses, focusing on H1a – the effect of packaging form on accurate product categorisation. Furthermore, the study further explores interactions between the hypothesised variables. The goal of the study is to establish a control group and measure the impact of the implicit cue, in the form of a packaging form, on product evaluation.

Study 2 addresses the second set of hypotheses. Firstly, it examines how implicit (packaging structure) and explicit (e.g. text) cues jointly shape consumer interpretations of an unconventional product concept — protein-enriched frozen fries. The experiment employs a 3 × 2 between-subjects design, crossing packaging form typicality (pillow/stand-up/jar-like) with protein-cue explicitness (absent/explicit). The study investigates how these design factors influence consumers’ cognitive and affective responses, including perceived usefulness, ease of understanding, curiosity, and adoption of “borrowed” (protein-related) associations, and how these perceptions translate into product appeal and willingness to pay. Moreover, Study 2 explores when and for whom these effects occur by considering individual differences in fitness lifestyle orientation, familiarity with protein products (BCF), and familiarity with the fries’ category (covariate), as well as perceptual variables such as perceived congruence and ease of use.



Figure 80 Study 1 conceptual framework (prioritised dependent variable)

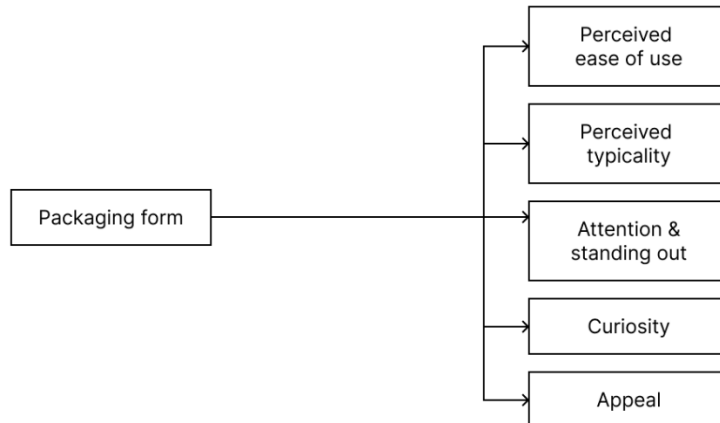


Figure 81 Study 1 conceptual framework (secondary dependent variables)

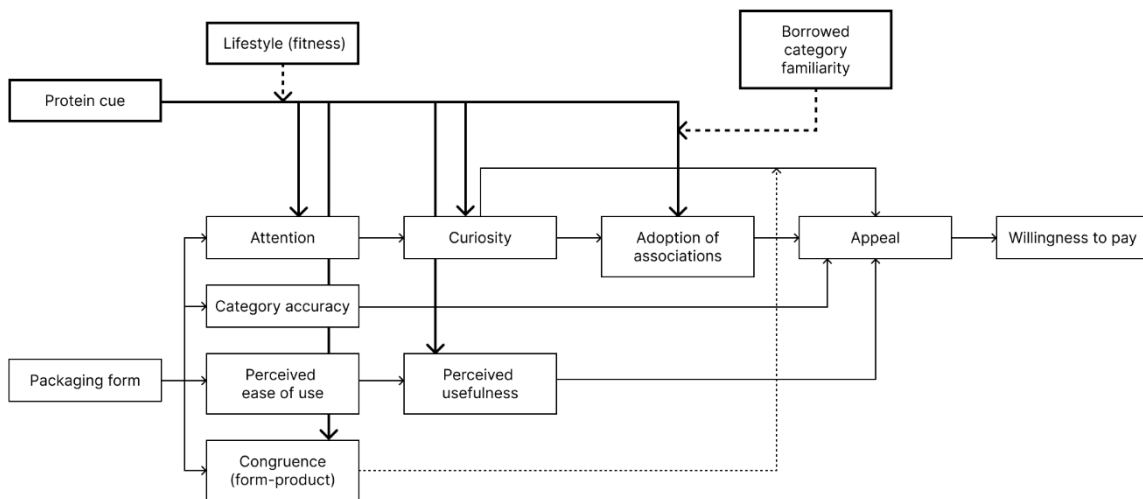


Figure 82 Study 2 conceptual framework



Chapter VII

Research design and methodology

VII RESEARCH DESIGN AND METHODOLOGY

7.1 Pre-test

Design

A pre-test was conducted to assess the validity of manipulation checks. Specifically, whether the typicality of the three packaging forms (pillow bag, standing bag, and a drum (protein jar)) is perceived in the intended manner. The assumption was that a pillow bag was most typical, while a drum was least. The second measured factor/manipulation check was the explicitness of added protein content to the product. The design of the pretest was between-subject, consisting of four cells — three cells with no “explicit protein” label (pillow bag, standing bag, drum), and one cell with a combination of a pillow bag form and an “explicit protein” label. As a result, a pillow bag with no explicit protein label can be considered the control group.



The pre-test took the form of an online survey and was launched on the Qualtrics research platform. Participants were randomly assigned to one of the variants (cells). The participants were recruited from personal networks, using snow-balling effect. In total, 160 people responded to the survey. Each questionnaire consisted of one stimulus design presented on three images (showing front, side, and the combination of the packaging) (Figure 83). The stimulus was followed by a series of questions measuring the manipulation check.



Figure 83 Set of pre-test stimuli

In the very first version of the survey (a pre-pre-test) the grade of chaos of the packaging form was measured using two established scales from Orłowski et al. (2022) “Compared to a standard packaging of frozen fries, how traditional is the packaging you reviewed?” and “The packaging of frozen fries I reviewed is:” both using 7-point rating scales ranging from “1 = Very traditional” to “7 = Not at all traditional.” However, very quickly into testing the pretest, the results indicated unintended interpretation of the items. The control group (pillow bag with no protein label) was perceived as highly untraditional, even though the design was intended to represent high traditionality. After questioning the participants, it was revealed that the combination of “traditional” and “packaging” made them focus solely on the label design. The label was considered unusual due to its minimalistic look, leading to highly untraditional scores. To address the issue, one item was replaced with a question explicitly asking about the packaging form.

Therefore, the final items measuring the grade of chaos manipulation check were: “Compared to a standard packaging of frozen potato fries, how traditional is the packaging you reviewed?” (Orłowski et al., 2022) and “How typical is the shape of the container for frozen fries?” The label manipulation check consisted of “Is the added protein aspect of this product noticeable?” (1 = Not at all noticeable; 7 = Very noticeable) and “Does this package clearly communicate that the product contains added protein?” (1 = Not at all clearly; 7 = Very clearly). All survey variants proceeded with more generic questions about clarity of product category belonging, perceived size/volume of the product, whether the product would fit in a freezer drawer, and general product familiarity (also adopted from Orłowski et al. (2022)).

Measures and learnings

A one-way ANOVA was conducted to compare the grade of chaos (atypicality) across three groups (pillow bag, standing bag, drum). There was a statistically significant difference in the perceived grade of chaos between the groups, $F(2, 106) = 69.15$, $p < .001$, $\eta^2 = .57$. Post hoc comparisons using the Tukey HSD test indicated that all variants were significantly different from each other, confirming the validity of the manipulation. The label manipulation was analysed using a t-test. The manipulation was significant (both one and two-sided $p < 0.001$), proving its validity.

The pretest exposed some potential issues concerning the item phrasing and the stimulus. As mentioned before, one of the manipulation check items had to be replaced. Secondly, the label design is perceived as relatively unique due to the minimalistic design and presentation of the product, i.e. traditional frozen fries packaging usually shows an abundance of fries, usually served on a sheet of paper or arranged in a bowl. Additionally, it became clear that it is difficult for the participants to assess the size of the shown packaging, resulting in them relying on the explicitly written 750g indicator on the packaging. However, many either missed or did not remember the detail, resulting in confusion. For example, one participant thought that the drum form looked like a small bottle/jar for pills (medicine). Therefore, the stimulus for the main study requires some visual point of reference, contextualising the size of the container. Furthermore, the survey revealed a significant difference in perceived freezer drawer fit between the bags and the drum — indicating the necessity of measuring “perceived ease of use” in the main study. The last unexpected learning concerns the presentation of the stimulus. Even though the survey explicitly communicated that the shown stimulus is the same design, some participants still looked for differences between the provided images (e.g., front and side of a pillow bag). I concluded that three images of the same design might be unnecessarily confusing, potentially misleading, and wasteful of participants’ time. As a result, I concluded that the main study is going to present only one image as a stimulus.

7.2 Main experiment introduction

Design

Overview: One online experiment, in the form of a survey, was used to gather data to evaluate developed conceptual frameworks and related hypotheses. The experiment took the form of a 2 by 3 between-subject design. For the sake of comprehensibility, the analysis of the gathered data is divided into two studies. Study 1 is solely dedicated to the influence of the degree of chaos (atypicality) — a one-factor design (1x3). Study 2 takes into consideration the second factor (explicitness of the label design) and how it interacts with the packaging form. At last, the two studies allow to make a comparison between the different product designs, concluding the research with overall results and recommendations.

Method and procedure: All respondents were introduced to the study, including what kind of data would be collected, how it would be stored and treated, as well as how to request to be removed from the study. All recorded respondents gave their consent to participate. In order to ensure equal response distribution, every participant was randomly allocated to one of the survey variants. The goal was to collect at least 50 responses per variant.

All surveys consisted of two parts. The first part was focused on measuring product categorisation using a tachistoscope (T-Scope). T-Scope is a consumer testing method that

utilises a controlled number of product expositions for a controlled duration of each exposition to measure a product's impact, image, and preference (synonymous with the three powers of packaging) (Stern, 1981). Where 'impact' stands for catching attention, 'image' for consumers' perceptions and impressions of the product, and 'preference' for the overall appeal of the product.

In this experiment, product categorisation is equivalent to 'image,' as it answers the question "what is the product?". Following the instructions, each participant saw the packaging three times. Traditionally, the method flashes the image eight times, with the first exposure lasting 1/150 seconds, and the last three 0.5, 1, and 2 respectively (Stern, 1981). However, due to the platform, internet browser, and internet speed constraints, the images would not load quickly enough for some respondents. Hence, the too-short exposition times were omitted. As a result, this experiment's first exposition lasted 0.5 seconds, the second 1 second, and the third 2 seconds. Some T-Scopes present the package among other brands and their packaging to measure the typicality of the design and how much it stands out. In this experiment, the flashed image depicted only an individual package — so as not to introduce existing brands, and control for brand familiarity. For the same reason, the tested packaging design does not showcase Lamb Weston but the hypothetical brand (O'Tato). After each of the three expositions, the respondents were asked to describe, in a few words, what they thought was inside the package.

The last (fourth) exposition was not part of the T-Scope anymore. The viewing time was unlimited but measured. The purpose of it was to create an additional item measuring attention, in the form of dwell time (Duncan et al., 1994), and to ensure that the participants correctly comprehended the product category. Once the participants decided to proceed, they had to answer the last categorisation question, which this time was in a multiple-choice format. 'Impact' and 'preference' are measured in the second part of the experiment, without any time control. The respondents had to answer several closed questions about the product, the packaging, and themselves.

Language: Just like this report, all original questions and instructions present in the survey were written in English, often adapting items from other research papers. However, considering that the experiment was concerned with the Dutch market, it was necessary to take into account the respondents' linguistic abilities. Hence, all questions were translated into Dutch. In order to control whether the translation was accurate, four native Dutch speakers assisted in the process of 'back translation.' The final version of the survey was offered in two languages — Dutch (default) and English (optional).

Items

All variables and the items measuring them feature in the appendix (10.1). To be repeatable and relevant to existing research, many of the items were taken directly or slightly adjusted, for the research's purposes, from other studies. Those are also referenced in the appendix. However, many of the questions asked were "custom-made," usually due to the particularity of the topic and the stimulus. All questions, unless stated otherwise, used a 7-point Likert scale with "1" indicating the lowest value (e.g. "very unfamiliar" or "strongly disagree") and "7" the highest (e.g. "very familiar" or "strongly agree").

Typicality of packaging form was measured using 1 custom and 1 item adopted from Orłowski et al. (2022). Label explicitness was measured using 2 custom items. Items measuring attention were custom but based on work by Van Rompay and Pruyn (2011). Curiosity items were appropriated from work by Hill et al. (2015). Adoption of associations deployed mostly custom

items, and one was adopted from Karnal et al. (2016). Category accuracy was established using a 3-point scale representing at what T-Scope exposition the participant correctly categorised the product (3=1st — 0.5s exposition, 2=2nd — 1s exposition, 3=3rd— 2s exposition, 0=never). Perceived ease of use and usefulness measures are adapted from Davis (1989). Congruence was measured using custom items related to Van Rompay and Pruyn (2011). Questions about “fitness lifestyle” were appropriated from several papers — Chandon and Wansink (2007), Rhodes et al. (2016), and Pu et al. (2020). Borrowed category familiarity and frozen fries’ familiarity were combinations of custom and Orłowski et al. (2022) items. Appeal and willingness to pay were adapted from Orłowski et al. (2022).

7.3 Study 1

Goal

Study 1 aims to test the hypothesised effects of packaging form typicality on consumers’ ability to recognise the product category and their subsequent evaluations. The study is focused on category recognition, perceived typicality, and perceived ease of use as core variables. The study measures the impact of the typicality/chaos factor, without any supportive textual (explicit) cues.

Method

Each participant was exposed to only one packaging stimulus — representing a degree of a/typicality (Figure 84). Thus, this was a single-factor (pillow bag, standing bag, drum), between-subjects experiment. The experiment measured subsequent categorisation accuracy, dwell time, self-reported attention, curiosity, appeal, and willingness to pay. As well as perceived (product) stand out, ease of use, and usefulness.



Figure 84 Study 1 stimulus

Sample

Participants were recruited through Prolific, a paid online platform connecting researchers with people who take part in the studies. 159 participants, split across the three experimental conditions, answered the questionnaire built and shared via Qualtrics, in their own environments. The participants were pre-screened. They were required to be residents in the Netherlands and speak either Dutch or English. Within the experiment, the participants had to answer another screening question about their grocery shopping frequency. Additionally, the survey controlled for response quality using two attention check questions. Three participants failed at least one

(out of two) attention check, and their data were erased. Another participant's data also needed to be removed due to a clearly low-quality response. The final sample included 155 respondents ($n_{\text{Pillow bag}} = 51$; $n_{\text{Standing bag}} = 54$; $n_{\text{Drum}} = 50$).

Based on Statista's consumer insight report on protein supplement users in the Netherlands (Gewiese et al., 2023), there are currently four generations of the category buyers. Gen Z (41%), Millennials (39%), Gen X (18%), and Baby Boomers (3%). Hence, the ages are divided into these age groups. Based on the same report, information was gathered on income estimates, type of place of residence (city, town, etc.) and gender. The respondents had the freedom to leave these questions unanswered. The demographic details of each group are presented in (Table 1).

Table 2 Study 1 demographic details

% of respondents	Pillow bag (n=51)	Standing bag (n=54)	Drum (n=50)
Generation			
Gen Z (1997–2012)	35.3	34	52
Millennials (1981–1996)	49	50.9	40
Gen X (1965–1980)	13.7	11.3	6
Baby Boomers (1946–1964)	2	3.8	2
Residence			
Countryside	0	0	2
Village (small)	23.5	16.7	18
Town (medium)	35.3	33.3	44
City (large)	41.2	50	36
Household income			
0-10.000 €	7.8	9.4	7.8
10.000-30.000 €	17.6	20.8	20.1
30.000-70.000 €	45.1	39.6	40.3
70.000-100.000 €	19.6	15.1	18.8
100.000+ €	9.8	15.1	13
Gender			
Male	47.1	59.3	58
Female	51	38.9	40
Non-binary	2	1.9	2

Preliminary measures

Correlation analysis: All values of the measured variables can be found in Table 2. The correlation analysis highlighted significant similarities between willingness to pay (WTP) and all other variables except for categorisation accuracy and borrowed category familiarity (covariate). Additionally, the correlation between WtP and product appeal, perceived usefulness, and curiosity was very strong (≥ 0.55). Since the existing literature already associates product appeal with WtP/intention to purchase, and the goal of my research is to assess consumer attitude towards a packaged product, WtP becomes redundant. Product appeal is the only final dependent variable.

The correlations have also exposed the irrelevance of respondents' "fitness lifestyle" (FL) profile. FL was significantly correlated only with the borrowed category familiarity (BCF) covariate. Since FL and BCF are similar in nature (profiling respondents in the context of protein products), the two constructs overlap. For that reason, FL is removed and BFC is kept, although BFC is not significantly correlated with any Study 1 variable.

The last identified issue concerned the dwell time on the 4th exposure of the stimulus, a hypothesised measurement of attention. The correlation between dwell time and the self-reported attention/stand out was non-significant ($p = 0.6$) and very weak ($r = -0.04$). The average

dwelling time across the three variants spanned between 18.8s (drum) and 19.4s (standing bag). A one-way ANOVA showed no significant effect of variant on dwelling time ($F(2, 152) = 0.04, p = .96$). This lack of significant differences between the stimuli might be attributed to the nature of Prolific's respondents, who fill questionnaires for a fee. Meaning that spending time not answering questions is an opportunity cost for them. As a result, the dwelling time variable was also removed.

Reliability and factor analysis: The reliability analysis has shown that most constructs were internally consistent, with most items having sufficient factor loadings. However, some constructs had inadequate loadings. Perceived easiness had one item ($=0.52$) removed. The subsequent analysis revealed improved values (Cronbach's $\alpha = .77$; all loadings > 0.8).

A principal component analysis with varimax rotation was conducted on six items. Two components had eigenvalues greater than 1 (3.41 and 1.01) and together explained 73.53% of the total variance. The rotation converged in three iterations. After reassessment of the items, two out of six were removed ("this product is healthier/more nutritious than other frozen fries"). The two items were, unlike the remaining, comparative and overlapping with another item, "this product is healthy." As a result, Cronbach's α increased to 0.84, and the construct became one-dimensional with component loading ≥ 0.71 .

Manipulation checks: Both form typicality and label explicitness were measured with two items per manipulation. The inter-item correlation for the protein communication scale was strong ($r = .80, p < .001$), indicating high internal consistency (Spearman-Brown reliability = .85). Similarly, the form typicality scale showed a strong inter-item correlation ($r = .77, p < .001$; Spearman-Brown reliability = .784). Hence, the manipulations were successful, and the item scores were averaged to create composite variables (form/label MC) for subsequent analyses.

Table 3 Correlations and descriptive statistics, Study 1

Construct	1	2	3	4	5	6	7	8	9	10	11
1. Form atypicality	—	-.297**	-.443**	—	.357**	-.616**	—	-.342**	.346**	—	—
2. Product Appeal			.409**	.463**	.168*	.528**	.442**	.262**	.164*	—	—
3. Perceived Easiness				.231**	-.210**	.507**	—	.282**	—	—	—
4. Perceived Usefulness					—	.360**	.351**	—	.518**	—	.161*
5. Self-reported attention						-.230**	.464**	—	.465**	—	—
6. Product Congruence							—	.288**	—	—	—
7. Curiosity								—	.447**	—	.193*
8. Categorisation accuracy									—	—	.199*
9. Adoption of Associations										—	—
10. BCF											—
11. FCF	—	—	—	—	—	—	—	—	—	—	—
Mean	3.494	4.178	5.288	3.285	4.437	3.948	3.845	1.942	3	5.019	1.407
Standard deviation	1.985	1.362	1.237	1.152	1.648	1.555	1.467	0.892	1.356	5.503	1.261

Cronbach's alpha	—	0.816	0.765	0.783	0.901	0.872	0.848	—	0.802	—	—
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N=155

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Results

H0: A one-way ANOVA showed a significant effect of packaging shape condition on the manipulation-check ratings, $F(2, 152) = 83.75, p < .001$. Post-hoc Tukey tests revealed that all three conditions differed significantly. As expected, pillow bag design was considered the most typical (4.94/7), followed by the standing bag (3.97/7), and the drum being the least typical (1.5/7).

H1a-b: To test H1a–H1c, a series of one-way ANCOVAs was conducted, examining the effects of packaging form (pillow/standing bag, drum) on categorisation accuracy, perceived usefulness (PU), curiosity, while controlling for fries' category familiarity (FCF). For categorisation accuracy, there was a significant main effect of variant, $F(2, 151) = 10.11, p < .001$, indicating that participants categorised less accurately as packaging form atypicality increased (pillow bag accuracy > standing bag accuracy > drum). The covariate FCF was also significant, $F(1, 151) = 6.43, p = .012$. The same procedure was applied to PU and curiosity. In both cases, the effect of variant was not significant (PU: $F(2, 151) = 1.09, p = .337$; curiosity: $F(2, 151) = 0.92, p = .403$), although FCF remained a significant covariate in both analyses ($p < .05$). The result suggests that perceived usefulness and curiosity are not directly affected by packaging form, which might lead to an eventual affirmation of the conceptual framework.

The relation between form typicality and product congruence, perceived ease of use (PEOU), attention, and adoption of associations was established using a series of one-way ANOVAs. A significant effect of the variant was found in relation to product congruence, $F(2, 152) = 63.05, p < .001$, and on perceived ease of use, $F(2, 152) = 24.19, p < .001$. Interestingly, the differences between the pillow and standing bag were not significant. However, the drum form was considered significantly less easy to use and less congruent. In contrast, self-reported attention, $F(2, 152) = 12.71, p < .001$, and adoption of associations, $F(2, 152) = 13.35, p < .001$, partial, were significantly higher for the most atypical form (DF) compared to PF and SF.

At last, a one-way ANOVA was conducted to examine the effect of packaging variant on product appeal. The analysis revealed a significant main effect of variant, $F(2, 152) = 8.45, p < .001$, partial $\eta^2 = .10$. Post hoc Tukey tests indicated that the most atypical packaging (drum) was rated as significantly less appealing than both the semi-typical (standing bag) and typical (pillow bag) variants ($p < .01$), whereas the two bags did not differ significantly.

H1a was fully supported. Form atypicality decreases categorisation accuracy, PEOU, and congruence. However, it is important to note that the latter two constructs did not yield any significant differences between pillow and standing bags. This is not an unexpected outcome since it links back to the concept of mould image and findings by Orłowski et al. (2022), where two structurally different bottles were considered more traditional than a can. H1b was not supported by the results, as the most typical packaging received the highest evaluations, though insignificantly larger than that of the standing bag. H1c was partially supported, as the most atypical form (drum) attracted significantly more attention and transferred associations better than the bag forms. However, perceived usefulness and curiosity were not significantly affected by packaging form.

H1d: A serial multiple mediation model (PROCESS model 6; Hayes, 2022) was estimated with form typicality (variant) as the predictor, attention, curiosity, and association attention as mediators in that order, and appeal as the outcome, controlling for BCF and FCF. The predictor (direct effect of atypicality) had a significant negative direct effect on appeal ($b = -0.67, p < .001$).

At the same time, variant positively predicted attention ($b = 0.76, p < .001$), which in turn positively predicted curiosity ($b = 0.42, p < .001$). The variant did not significantly affect curiosity. Subsequently, adoption (transfer) of associations was significantly impacted by all three constructs. However, only one indirect path was significant. The significant indirect effect of variant on appeal through attention and curiosity in sequence measured $ind4 = 0.12, 95\% CI [0.054, 0.215]$. Where curiosity positively predicted appeal ($b = 0.38, p < .001$). Additionally, the model took FCF (familiarity with fires) into account. The covariate had a small and significant positive effect on attention ($b = 0.20, SE = 0.10, p = .048, 95\% CI [0.00, 0.39]$), indicating that participants more familiar with the product category tended to consider the packaging more attention-grabbing. No significant effects of FCF emerged on curiosity, association-attention, or product appeal.

H1e (categorisation accuracy): A simple mediation analysis (PROCESS model 4; Hayes, 2022) was conducted to test whether categorisation accuracy mediates the effect of variant on product appeal, controlling for FCF. The covariate was found to have a significant impact on categorisation ($b = 0.13, SE = 0.05, p = .012$) but not on appeal, indicating that participants more familiar with the product category were better at correctly identifying the product.

Variant negatively predicted categorization accuracy ($b = -0.37, SE = 0.08, p < .001$), and categorization accuracy positively predicted appeal ($b = 0.26, SE = 0.13, p = .038$). The direct effect of the variant on appeal remained significant ($b = -0.40, SE = 0.14, p = .004$). The indirect effect through categorisation accuracy was negative but not significant (indirect effect = $-0.10, 95\% CI [-0.22, 0.01]$), suggesting that while reduced categorisation accuracy partly explains why atypical variants are less appealing, this mediation did not reach statistical significance. Therefore, the hypothesis is supported, as categorisation accuracy is positively and significantly related to appeal. But the mediation's indirect effect is not significant.

H1f (PEOU and PU): Even though a one-way ANOVA revealed no significant direct differences in perceived usefulness between packaging variants, $F(2, 152) = [1.13], p > .05$. Form atypicality had a significant negative effect on perceived ease of use ($b = -0.68, p < .001$). Perceived ease of use positively predicted perceived usefulness ($b = 0.21, p = .011$), which in turn positively predicted appeal ($b = 0.46, p < .001$). The hypothesised serial indirect effect was significant (indirect = $-0.07, 95\% CI [-0.13, -0.02]$). The direct effect of the variant on appeal became nonsignificant once the mediators were included ($b = -0.23, p = .07$). As anticipated, FCF had a small but significant effect on perceived usefulness ($b = 0.15, SE = 0.07, p = 0.04$). H1f was supported.

H1g (product congruence): the last hypothesised chain interaction is the moderating effect of congruence on the relationship between curiosity and appeal. A moderation analysis (PROCESS Model 1; Hayes, 2022) was conducted to test the interaction, controlling for FCF.

Both curiosity ($b = 0.44, p = .004$) and congruence ($b = 0.51, p = .001$) positively predicted appeal. However, their interaction was not significant ($b = -0.02, p = .52$), indicating that the effect of curiosity on product appeal does not vary by levels of perceived congruence. FCF had no significant influence ($b = -0.03, p = .68$). Therefore, H1g was not supported.

Conclusion and re-evaluation

The results have proven the relevance of all the hypothesised constructs in relation to packaging form typicality and the eventual perception of the product's appeal. Form atypicality decreases categorisation accuracy, PEOU, and congruence. Additionally, the most atypical form (drum) attracted significantly more attention and transferred associations better than the bag alternatives. Perceived usefulness and curiosity were not significantly affected by packaging form, which was anticipated through the development of chain mediation pathways. It is important to note that the inverted-U appeal hypothesis was not supported. Interestingly, both typical and moderately atypical forms (bags) were seen as similarly appealing.

Hypotheses H1d-g shed more light on the interactions between the variables. The first pathway — mediating chain (variant > attention > curiosity > adoption of association > appeal) was not supported by the analysis. However, the chain becomes significant when adoption of associations is dropped. The second pathway (the mediating model of category accuracy) appeared insignificant, regardless of the fact that atypicality significantly decreases the accuracy, and that higher accuracy significantly impacts appeal. The third pathway was fully supported. As anticipated, the less atypical form, the higher perceived ease of use which led to higher perceived usefulness. This learning is consistent with literature and the concept of 'ease of learning' (Roberts & Moran, 1983; Whiteside et al., 1985; Davis, 1989; Mugge and Dahl, 2013). At last, the role of congruence as a moderator between curiosity and appeal was not supported.

As a result, the analysis indicates the necessity of the conceptual model's re-evaluation (Figure 85). The first pathway is significant without the association adoption mediator. Despite the fact that the category accuracy was found to be non-significant in mediating appeal, it is reasonable to keep it as one in anticipation of a greater effect in study 2. At last, pathway 4 has shown that congruence does not play the hypothesised moderating role. Therefore, pathway 4 is changed from moderation to a chain mediation of association adoption and congruence between form atypicality and appeal.

Reevaluated results

Pathway 1: A serial mediation model (PROCESS Model 6; Hayes, 2022) was estimated with variant as the predictor, attention and curiosity as mediators, and product appeal as the outcome, controlling for FCF. Variant positively predicted attention ($b = 0.74$, $p < .001$), and attention positively predicted curiosity ($b = 0.42$, $p < .001$). Curiosity, in turn, positively predicted appeal ($b = 0.41$, $p < .001$). The specific indirect effect of the variant on appeal through attention and curiosity in sequence was significant (indirect = 0.13, 95% CI [0.06, 0.22]). The direct effect of variant on appeal remained negative and significant ($b = -0.64$, $p < .001$), indicating that although atypical variants can enhance appeal via an attention-curiosity route, this positive mechanism does not fully offset the negative direct evaluation. FCF was included as a control and showed a small positive effect on attention ($p = .048$), but not on the other variables.

Pathway 4: A serial mediation model (PROCESS Model 6; Hayes, 2022) was tested to examine whether the effect of packaging variant on product appeal operates through associations and perceived product congruence in sequence, controlling for FCF.

Variant positively predicted association adoption ($b = 0.58$, $p < .001$), and associations positively predicted perceived congruence ($b = 0.16$, $p = .046$). However, atypicality (variant) also influenced congruence but negatively ($b = -1.27$, $p < .001$). Congruence strongly predicted appeal ($b = 0.45$, $p < .001$) and so did associations ($b = 0.23$, $p = 0.002$). The direct effect of the variant was non-significant, and the indirect effect on appeal through associations and congruence in

sequence was small but significant (indirect = 0.04, 95% CI [0.001, 0.095]). Additionally, the variant had a positive indirect effect through associations alone (indirect = 0.13, 95% CI [0.03, 0.26]) and a strong negative indirect effect through congruence alone (indirect = -0.57, 95% CI [-0.83, -0.33]). The total indirect effect was marginally negative and significant (-0.39, 95% CI [-0.69, -0.10]), while the direct effect was not significant ($b = -0.10, p = .50$).

Regression analysis: A multiple regression was conducted to assess the combined influence of all cognitive and perceptual constructs on product appeal. The overall model was significant, $F(8,146) = 19.37, p < .001$, explaining 51.5% of the variance in appeal ($\text{Adj. } R^2 = .49$). Product congruence, curiosity, and perceived usefulness had the highest scores for standardised coefficients (Table 3). Categorisation accuracy, associations, and category familiarity (FCF) were not significant when the other predictors were controlled.

Table 4 Study 1, Coefficients (a)

Impact	Model	Unstandardized Coefficients		Standardized Coefficients		Collinearity Statistics		
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	Product Congruence	0.269	0.066	0.307	4.042	0.000	0.578	1.732
2	Self-reported curiosity	0.259	0.067	0.279	3.852	0.000	0.632	1.582
3	Perceived Usefulness	0.292	0.092	0.247	3.166	0.002	0.545	1.834
4	Perceived Easiness	0.218	0.076	0.198	2.880	0.005	0.701	1.427
5	Self-reported attention	0.158	0.060	0.191	2.616	0.010	0.626	1.598
ns	Categorization accuracy	0.156	0.096	0.102	1.619	0.108	0.839	1.192
ns	FCF	-0.076	0.065	-0.070	-1.163	0.247	0.907	1.102
ns	Adoption of Associations	-0.117	0.081	-0.116	-1.445	0.150	0.513	1.949
ns	(Constant)	-0.227	0.549		-0.413	0.680		

a. Dependent Variable: Product Appeal

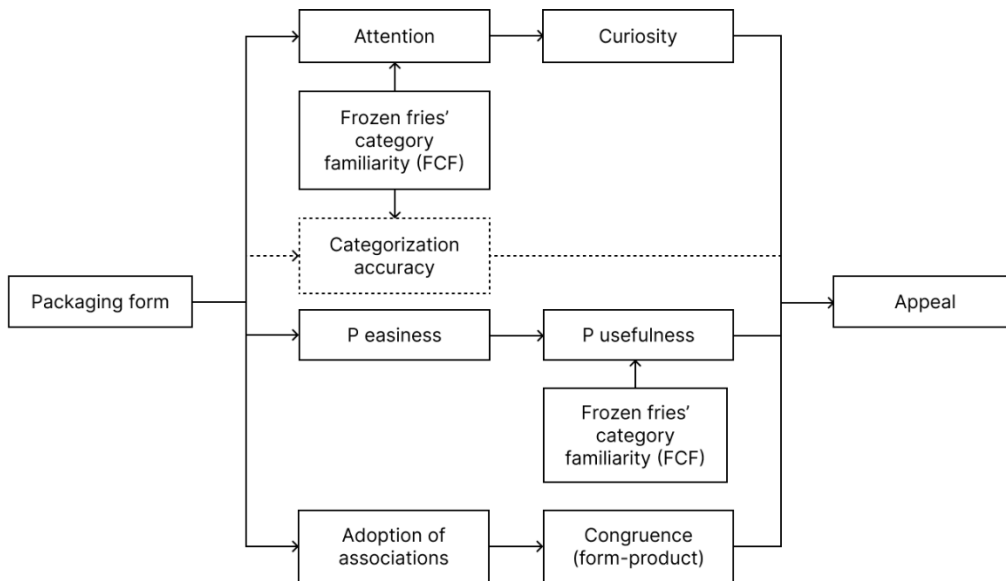


Figure 85 Revised framework, Study 1

Conclusions (Study 1)

Study 1 results reaffirm most hypotheses and clarify interactions between the studied constructs. One of the most fundamental findings is that atypicality, in general, decreases the perceived product appeal. While the proposed model explains only 51% of appeal, the identified hindrances are primarily caused by congruence and perceived usefulness, as form atypicality (directly or indirectly) reduces the perceived values of the two constructs. Although the regression analysis found both categorisation accuracy and adoption of association non-significant, the latter is a significant mediator between form atypicality and congruence. That means that respondents who connect the packaging form and associations are more likely to consider the packaging to be more congruent—to make sense.

The second fundamental finding is the atypicality's power to draw attention and ignite curiosity. Attention's role of mediator is very important, as one-way ANOVA of curiosity by variant ($F(2,152) = 0.81, p = .45$) does not reveal any significant differences between the groups. At last, it is important to reiterate the final general finding — the most atypical form (drum) scored the lowest in appeal, while the two bags did not differ significantly. This trend is also spotted in perceived ease of use, perceived congruence, attention-grabbing, and adoption of associations, where, for better or worse, the drum design stands out from the two bag designs.

7.4 Study 2

Goal

The former study is concerned only with the form atypicality factor, while study two expands it by another — label explicitness. The results will shed light on consumer response to explicit communication of product characteristics. The aim of the study is to replicate results and observe the differences between the four most fringe cases (non-explicit vs explicit pillow bag, non-explicit vs explicit drum).

Method

Each participant was exposed to only one packaging stimulus — representing a degree of a/typicality in combination with label explicitness (of the protein content). Hence, this study is an extension of Study 1 and takes the form of a 3 (typical vs moderately atypical vs very atypical) x 2 (non-explicit vs explicit), between-subject design (Figure 86). The study aims to replicate Study 1 and compare results between the explicitness-factor cases. Since the first study identified and removed redundant constructs and specific items, as well as corrected the conceptual model, this experiment measures only categorisation accuracy, self-reported attention, curiosity, appeal, perceived (product) stand out, ease of use, and usefulness, adoption (transfer) of associations, and congruency.



Figure 86 Study 2 stimulus

Sample

Participants were recruited through Prolific and answered the questionnaire built and shared via Qualtrics, in their own environments. Qualtrics automatically assigned participants to one of the six stimulus groups, based on the total number of participants per group — keeping groups equal. The participants were pre-screened and required to reside in the Netherlands and speak either Dutch or English. Within the experiment, the participants had to answer another screening question about their grocery shopping frequency. Additionally, the survey controlled for response quality using two attention check questions. The final sample of Study 1 included 155 respondents ($n_{\text{Pillow bag non-explicit}} = 51$; $n_{\text{Standing bag non-explicit}} = 54$; $n_{\text{Drum non-explicit}} = 50$), which was extended by another 155 valid responses ($n_{\text{Pillow bag explicit}} = 49$; $n_{\text{Standing bag explicit}} = 53$; $n_{\text{Drum explicit}} = 53$) to the second factor stimulus (Table 4). The demographic composition of the groups is shown in the table below.

Table 5 Study 2 demographics

% of respondents	Non-explicit pillow bag (n=51)	Non-explicit standing bag (n=54)	Non-explicit drum (n=50)	Explicit pillow bag (n=51)	Explicit standing bag (n=54)	Explicit Drum (n=50)
Generation						
Gen Z (1997–2012)	35.3	34	52	26.5	39.6	26.4
Millennials (1981–96)	49	50.9	40	63.3	35.8	52.8
Gen X (1965–80)	13.7	11.3	6	8.2	20.8	18.9
Baby Boomers (1946–64)	2	3.8	2	2	3.8	1.9
Residence						
Countryside	0	0	2	2	9.4	0
Village (small)	23.5	16.7	18	16.3	22.6	24.5
Town (medium)	35.3	33.3	44	32.7	28.3	35.8
City (large)	41.2	50	36	49	39.6	39.6
Household income						
0-10.000 €	7.8	9.4	7.8	4.1	5.7	5.7
10.000-30.000 €	17.6	20.8	20.1	14.3	17	11.3
30.000-70.000 €	45.1	39.6	40.3	40.8	43.4	41.5
70.000-100.000 €	19.6	15.1	18.8	20.4	22.6	24.5
100.000+ €	9.8	15.1	13	20.4	11.3	17
Gender						
Male	47.1	59.3	58	51	50.9	41.5
Female	51	38.9	40	44.9	49.1	56.6
Non-binary	2	1.9	2	2	0	1.9

Preliminary measures

Correlations: The correlation matrix (Table 5) of Study 2 reveal new potential interactions between the newly added factor and the preexisting constructs. Label explicitness is significantly and positively correlated with perceived usefulness and adoption of associations, while negatively correlated with categorization accuracy. The matrix also highlights changes in the significance measures of correlations between preestablished constructs. In Study 2, FCF became significantly correlates with appeal and attention, but lost significance in respect to usefulness and congruence. Even more interestingly, BCF (borrowed category familiarity = protein products) which had no significant correlations in Study 1 became significantly correlated with perceived usefulness and curiosity. A number of other constructs became correlated with each other. However, all the correlation links are weak (between 0.09 and 0.2).

Reliability and factor analysis: the repeated reliability analysis has shown all constructs were internally consistent (all Cronbach's $\alpha \geq 0.79$), with all items having sufficient factor loadings (> 0.8). Additionally, all constructs had only one extracted component. The descriptive statistics, reliability and correlation statistics can be found below (Table 5).

Manipulation checks: Both form typicality and label explicitness were measured with two items per manipulation. The inter-item correlation for the protein communication scale was strong ($r = .77, p < .001$). Similarly, the form typicality scale showed a strong inter-item correlation ($r = .76, p < .001$), the manipulations were successful, and the item scores were averaged to create composite variables (atypicality/explicitness) for subsequent analyses.

Table 6 Correlations and descriptive statistics, Study 2

Construct	0	1	2	3	4	5	6	7	8	9	10	11
0. Label explicitness	—	—	—	—	0.241	—	—	—	-0.251	0.511	—	—
1. Form atypicality			-.356**	-.448**	-.145*	.403**	-.612**	—	-.469**	.228**	—	—
2. Perceived Easeiness				.500**	.521**	.150**	.552**	.531**	.293**	.174**	—	.129*
3. Perceived Usefulness					.313**	-.190**	.520**	.134*	.331**	—	—	—
4. Self-reported attention						0.111	.391**	.531**	—	.563**	.180**	—
5. Product Congruence							-.241**	.348**	-.176**	.346**	—	.137*
6. Perceived Usefulness								.209**	.345**	—	—	—
7. Perceived Usefulness									.094	.389**	.124*	.190**
8. Categorization accuracy										-.203**	—	.132*
9. Adoption of Associations											—	—
F												—
Mean	3.7129	3.5274	4.2409	5.2269	3.5944	4.5339	4.0763	4	1.6984	3.7685	5.0452	5.4871
Standard deviation	1.93289	1.97928	1.33011	1.29633	1.28431	1.56806	1.56975	1.51179	0.97218	1.50762	1.51729	1.32861
Cronbach's alpha	—	—	0.804	0.79	0.833	0.89	0.878	0.844	—	0.834	—	—

N=310

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Adjusted model:

Since Study 1 concluded with the model re-evaluation, Study 2 begins with the updated model. Additionally, the original study 2 conceptual model is further adjusted due to the correlation analysis, specifically between label explicitness (the new factor) and other constructs. Explicitness has two weak and negative correlations with usefulness and categorisation accuracy, and a moderate positive correlation with adoption (transfer) of associations; all other correlations were non-significant. As a result, the up-to-date model (Figure 87) does not propose label x congruence/attention/curiosity interactions.

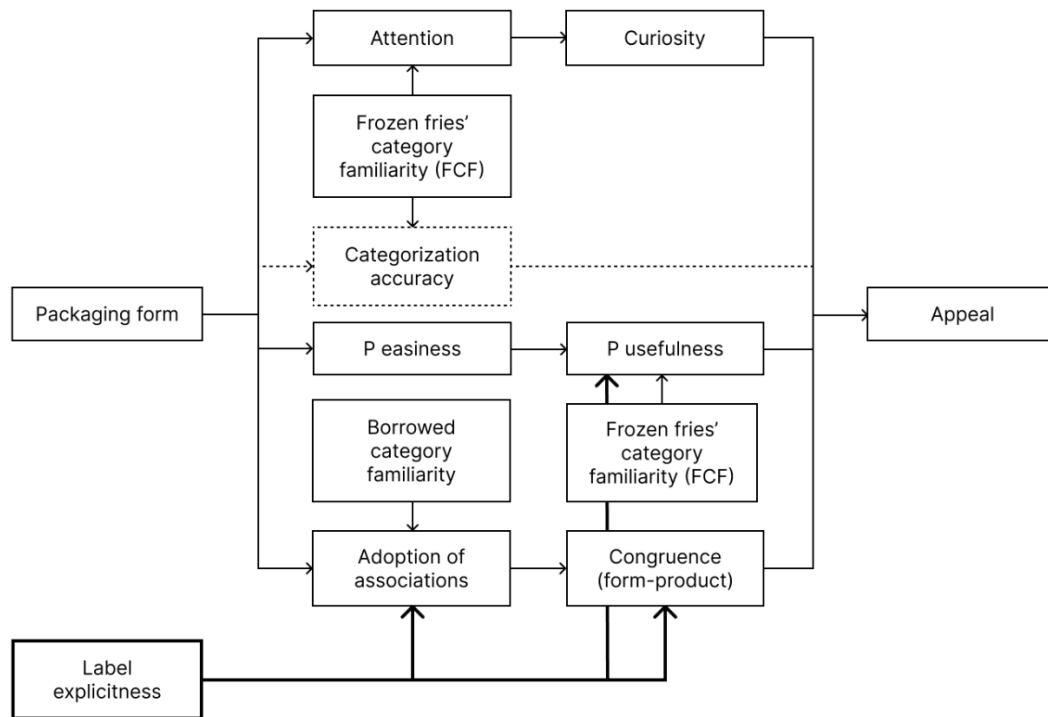


Figure 87 Study 2 framework

General results, comparison between variants

In order to estimate the overall differences between Study 1 and Study 2, and the total of six variants, a one-way ANOVA was conducted (for the table, see Appendix 10.2). The ANOVA revealed that the between-groups comparison was significant ($p < .001$) for all constructs except for curiosity, and the FCF and BCF covariates.

Product appeal, perceived ease of use (PEOU), attention, and product congruence all followed the same pattern. The results have shown no significant differences between the two bags, while the drum form always stood out. In other words, non-explicit pillow bag, explicit pillow bag, non-explicit standing bag, and explicit standing bag do not yield any significant differences between each other in relation to the respective constructs. Drums scored lower in appeal, PEOU (though still on the positive side of the scale), and congruence but higher in attention.

PU brought more complex results. The least (perceived) useful form was the non-explicit drum, and the most useful was the explicit pillow bag form. All other variants were in the middle of the spectrum, with the general rule that the explicit designs were seen as more useful. Categorisation accuracy yielded anticipated results — the easiest design to categorise was the non-explicit pillow bag, followed by the explicit one, then the non-explicit standing bag, explicit

standing, eventually leading to the absolute lowest — the explicit drum. These findings clearly iterate the observations from the correlation analysis where explicitness is significantly correlated with categorisation accuracy. Just like the correlation comparison suggested, adoption of associations seems to be even more affected by the label than categorisation. Explicit drum scores highest, followed by explicit standing and then pillow bags. Following the pattern, the least associative design is a non-explicit pillow bag.

These findings already indicate successful replication of results from Study 1. However, the presence of the label explicitness adds an additional dimension that needs to be further studied.

Results

H2a and H2k (attention-grabbing): To assess the influence of the two factors on attention, a two-way ANCOVA was conducted, controlling for covariate FCF (fries' category familiarity). The overall model was significant, $F(6, 303) = 13.33, p < .001, R^2 = .21$. FCF was a significant covariate, $F(1, 303) = 10.75, p = .001$. There was a significant main effect of packaging form, $F(2, 303) = 35.37, p < .001$. However, explicitness had non-significant influence on attention ($F(1, 303) = 1.12, p = .29$), and the $\text{FormTyp} \times \text{LabelExp}$ interaction was also not significant, $F(2, 303) = 0.23, p = .79$. Adjusted means showed that the drum format ($M = 5.46$) elicited higher attention than the standing bag ($M = 4.28$), $p < .001$, and the pillow bag ($M = 3.86$), $p < .001$. The difference between standing and pillow bags did not reach significance after Bonferroni adjustment, $p = .097$.

Hence, H2a is supported and replicates Study 1 — atypicality generates greater attention. But H2k is unsupported, as the impact of label explicitness is insignificant on attention.

H2f (categorisation accuracy): A univariate ANCOVA examined the effects of packaging form and label explicitness on categorisation accuracy, controlling for FCF. The model was significant, $F(6, 303) = 23.62, p < .001, R^2 = .32$. FCF was not a significant covariate, $F(1, 303) = 3.51, p = .062$. There was a significant main effect of packaging form, $F(2, 303) = 47.17, p < .001$, such that categorisation accuracy decreased from pillow bag ($M = 2.20$) to standing bag ($M = 1.81$) to drum ($M = 1.11$). Label explicitness also had a significant effect, $F(1, 303) = 25.65, p < .001$, with lower categorisation accuracy for explicit protein labels ($M = 1.47$) than for absent labels ($M = 1.94$). Importantly, the interaction between form type and label explicitness was significant, $F(2, 303) = 5.71, p = .004$, indicating that the negative impact of label explicitness on categorisation accuracy was strongest for the drum format (as seen in the Figure 88).

Hence, H2f is supported and replicates Study 1 — atypicality of form decreases categorisation accuracy. However, the hypothesis did not take into account the role of the label's explicitness, which also decreases categorisation accuracy. The two factors' interaction causes the explicitly labelled drum to be by far the hardest to categorise.

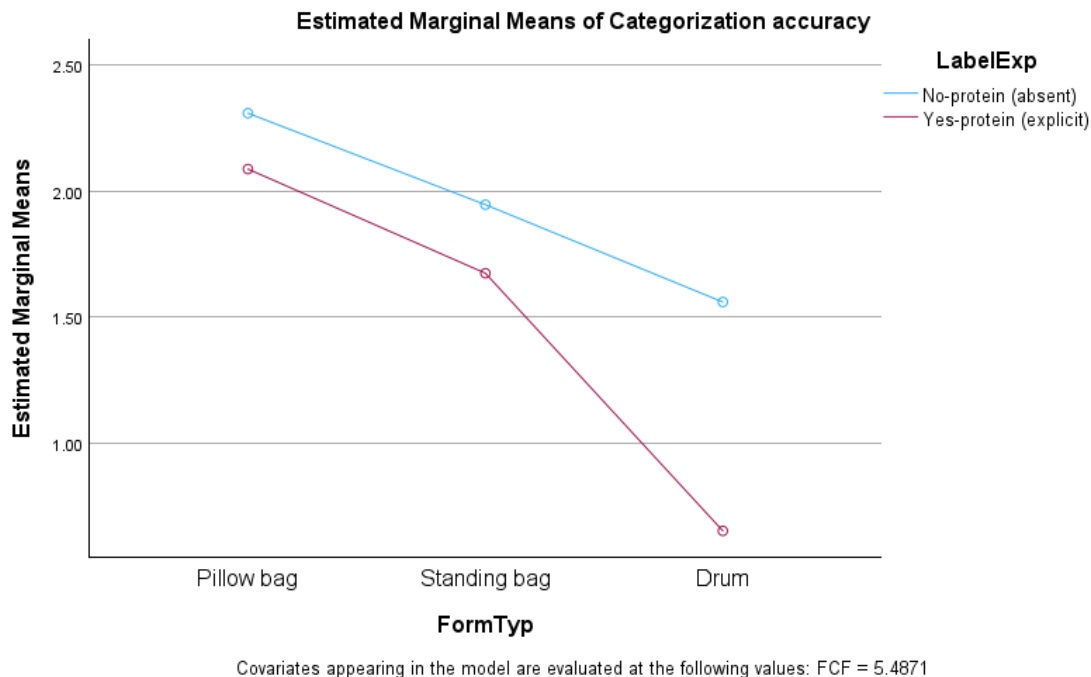


Figure 88 Study 2, variants x categorisation accuracy

H2h (PEOU): A two-way ANOVA was used to examine the effects of packaging and label explicitness on perceived ease of use. The overall model was significant, $F(5, 304) = 18.75$, $p < .001$, $R^2 = .24$. There was a strong main effect of packaging form, $F(2, 304) = 46.25$, $p < .001$. Post-hoc Bonferroni tests indicated that the drum format ($M = 4.35$) was rated as significantly less easy to use than the standing bag ($M = 5.56$) and the pillow bag ($M = 5.78$), $p < .001$, while the two bag types did not differ ($p = .50$), just like in Study 1. The main effect of label explicitness was not significant, $F(1, 304) = 0.53$, $p = .47$, and there was no significant interaction between form type and label explicitness, $F(2, 304) = 0.17$, $p = .84$.

Hence, H2h is supported and replicates Study 1 — atypicality of form decreases perceived ease of use.

H2l (curiosity): A two-way ANOVA tested the effects of the two factors on curiosity. The overall model was not significant, $F(5, 304) = 1.37$, $p = .24$, $R^2 = .02$. There was no main effect of packaging form, $F(2, 304) = 0.01$, $p = .99$. The main effect of label explicitness approached but did not reach significance, $F(1, 304) = 3.33$, $p = .069$, indicating a slight tendency toward higher curiosity for explicitly labelled products ($M = 4.16$) compared with unlabelled ones ($M = 3.85$). The interaction between form type and label explicitness was not significant, $F(2, 304) = 1.78$, $p = .17$.

Hence, H2l is not supported — the presence of an explicit protein cue does not increase curiosity. On the other hand, neither does form atypicality, replicating Study 1 results.

H2m and H2o (adoption of associations): A univariate ANCOVA examined the effects of form atypicality and label explicitness on adoption of associations, controlling for BCF. The overall model was significant, $F(6, 303) = 25.42$, $p < .001$, $R^2 = .34$. However, unexpectedly, covariate BCF was not significant, $F(1, 303) = 1.68$, $p = .20$. There was a significant main effect of form type, $F(2, 303) = 13.92$, $p < .001$, with the drum format ($M = 4.30$) showing higher association adoption than the pillow ($M = 3.49$) and standing ($M = 3.53$) bags ($p < .001$). Label explicitness also had a strong main effect, $F(1, 303) = 115.69$, $p < .001$, as explicitly labelled packages ($M = 4.53$) elicited greater

association adoption than unlabelled ones ($M = 3.01$). The factor interaction was not significant, $F(2, 303) = 2.12, p = .12$. The differences between variants can be seen below (Figure 89).

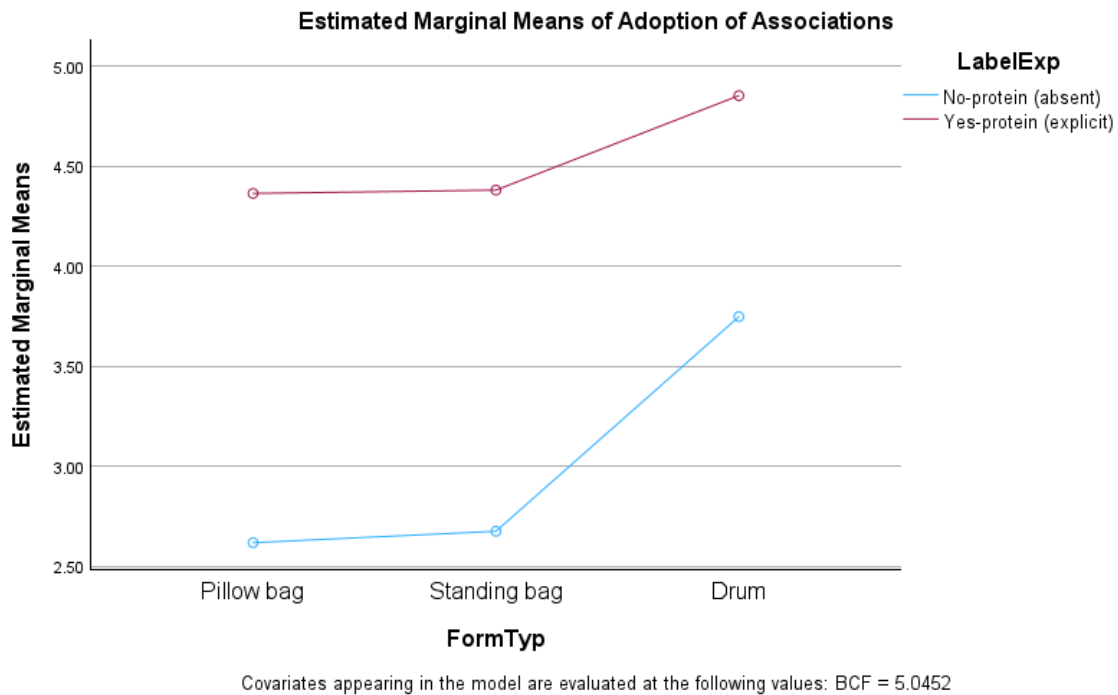


Figure 89 Study 2, adoption of associations by variant

Therefore, H2m is supported and replicates Study 1 results — an explicit protein label increases association adoption, and so does the form factor, but not to the same extent. However, H2o is not supported, as BCF (borrowed category familiarity) was found non-significant.

Pathways/interactions: The immediate effects of manipulations on the constructs were estimated earlier, using one- and two-way AN(C)OVAS. However, in order to assess the validity of the remaining hypotheses, as well as the developed conceptual model, it is necessary to measure the interactions between the constructs.

Pathway 1 (attention>curiosity): Since the explicitness factor had a non-significant impact on attention, this pathway remains the same as in Study 1. Hence, a serial mediation analysis (PROCESS Model 6) tested whether the effect of packaging form atypicality on product appeal was transmitted through self-reported attention and curiosity, controlling for label explicitness and FCF. The total model explained 42 % of the variance in appeal. Atypical form reduced appeal directly ($b = -.68, p < .001$) but also increased attention ($b = .80, p < .001$), which in turn enhanced curiosity ($b = .37, p < .001$) and appeal ($b = .13, p = .003$). Bootstrapping confirmed significant indirect effects through attention alone ($b = .11, 95\% \text{ CI } [.02, .20]$), curiosity alone ($b = -.12, 95\% \text{ CI } [-.22, -.04]$), and the serial pathway attention > curiosity ($b = .13, 95\% \text{ CI } [.08, .19]$). FCF had a small but positive impact on attention ($b = .2, p = .001$) and curiosity ($b = 0.14, p = 0.02$). As expected, label explicitness was non-significant.

Therefore, H2b is supported and replicates Study 1 — greater attention increases curiosity about the product.

Pathway 2 (categorisation accuracy): Since explicitness had an unforeseen significant impact on categorisation, this pathway must be adjusted. As a result, explicitness is utilised as a covariate.

A mediation analysis (PROCESS Model 4) examined whether the effect of packaging form atypicality on product appeal was mediated by categorisation accuracy, controlling for label explicitness and FCF. Atypical form significantly reduced categorisation accuracy, $b = -0.55$, $p < .001$, and categorisation accuracy positively predicted appeal, $b = 0.25$, $p = .004$. The indirect effect of form atypicality on appeal through categorisation accuracy was significant, $b = -0.14$, 95% CI $[-0.24, -0.04]$, indicating that lower categorisation accuracy partially mediates the negative impact of form atypicality on product appeal. The direct effect of form atypicality on appeal remained significant, $b = -0.44$, $p < .001$, suggesting partial mediation. As predicted, the explicitness factor had a significant and negative effect on categorisation (-0.47 , $p < .001$). FCF was non-significant.

Therefore, H2g is supported and replicates Study 1 — categorisation accuracy positively affects appeal. But categorisation is impeded by both form atypicality and label explicitness.

Pathway 3 (PEOU>PU): Since explicitness had an anticipated significant impact on perceived usefulness, this pathway follows the re-evaluated Study 2 conceptual model.

A serial mediation analysis (PROCESS Model 6) examined whether the effect of packaging form atypicality on product appeal was transmitted through perceived easiness of use and perceived usefulness, controlling for label explicitness and FCF. The total model explained 42% of the variance in appeal. Atypical form significantly reduced perceived easiness ($b = -0.72$, $p < .001$), and perceived easiness increased both usefulness ($b = 0.33$, $p < .001$) and appeal ($b = 0.31$, $p < .001$). Perceived usefulness also positively predicted appeal ($b = 0.42$, $p < .001$). As hypothesised, the bootstrapped confidence intervals confirmed significant indirect effects through the serial path via both mediators ($b = -0.10$, 95% CI $[-0.15, -0.06]$). As expected, explicitness did not affect perceived ease of use but had a significant and high effect on PU ($b = .67$, $p < .001$).

FCF had a small but significant effect on PU ($b = .1$, $p = .05$) and appeal ($b = .09$, $p < .001$). BCF did not significantly predict perceived easiness ($b = .04$, $p = .36$), but it positively predicted perceived usefulness ($b = .13$, $p = .005$). Furthermore, a two-way ANCOVA revealed a significant main effect of packaging form type on perceived usefulness, $F(2, 302) = 3.644$, $p = .027$, with pillow bags perceived as significantly more useful than drums, while standing bags did not differ from either.

Hence, H2i and H2j are supported, and they replicate the results of Study 1. Additionally, the label explicitness factor reinforces perceived usefulness, and so does packaging form, replicating results of H1c from Study 1.

Pathway 4 (associations>congruence): As tested before, explicitness had an anticipated significant impact on the adoption of associations. A two-way ANOVA that tested the effects of packaging form and label explicitness on product congruence found that the explicitness factor had a small but significant effect, $F(1, 304) = 5.11$, $p = .024$, with explicit labels ($M = 4.23$) perceived as more congruent than unlabelled ones ($M = 3.93$). Hence, the re-evaluated conceptual model of Study 2 remains unchanged.

A serial mediation analysis (PROCESS Model 6) examined whether the effect of packaging form atypicality on product appeal was mediated by adoption of associations and product congruence, controlling for label explicitness and BCF. The total model explained 35% of the

variance in appeal. Atypical form increased adoption of associations ($b = 0.40$, $p < .001$) but decreased product congruence ($b = -1.24$, $p < .001$). Adoption of associations and product congruence both positively predicted appeal ($b = 0.23$ and $b = 0.42$, respectively). Bootstrapping confirmed three significant indirect effects: through adoption of associations alone ($b = 0.09$, 95% CI [.04, .16]), through congruence alone ($b = -0.52$, 95% CI [-.69, -.37]), and serially through both mediators ($b = 0.02$, 95% CI [.00, .05]). The direct effect of form on appeal was not significant ($b = -0.18$, $p = .07$), indicating full mediation. These findings suggest that form atypicality simultaneously triggers positive associative elaboration and negative incongruence, producing a dual mediation pattern in which cognitive engagement can partially offset (but not eliminate) the loss of appeal from low congruence. BCF had no significant effects at any stage of the chain. Label explicitness had significant effects on adoption of associations ($b = 1.52$, $p < .001$) and appeal ($b = -34$, $p = 0.02$). While the analysis finds the chain mediation significant, the chain could potentially be split into two single, separate mediations between form and appeal.

Nevertheless, H2d and H2e are supported, and they replicate the results of Study 1, with a caveat that adoption of association influences appeal both directly and indirectly.

Juxtaposition of designs

Non-explicit vs explicit pillow bag: A series of independent-samples t-tests compared the non-explicit and explicit pillow bag designs. Results showed that the explicit design produced significantly higher perceived usefulness, $t(98) = -3.24$, $p = .002$, higher curiosity, $t(98) = -2.33$, $p = .022$, and substantially higher adoption of associations, $t(98) = -7.26$, $p < .001$. No other constructs differed significantly (all $p > .10$).

Non-explicit vs explicit standing bag: Again, an independent-samples t-test compared the non-explicit and explicit packaging variants. Similarly to the pillow bag juxtaposition, the results showed that the explicit design significantly increased perceived usefulness, $t(105) = -2.53$, $p = .013$, and substantially improved adoption of associations, $t(105) = -6.48$, $p < .001$. No other differences reached significance (all $p > .10$), including curiosity. Also, categorisation accuracy tended to be higher for the non-explicit label, though the differences were non-significant.

Non-explicit vs explicit drum: An independent-samples t-test compared the non-explicit and explicit highly atypical packaging forms — drums. Following the trend of the former t-test, the explicit packaging led to significantly greater adoption of associations, $t(101) = -4.87$, $p < .001$, whereas non-explicit packaging produced significantly higher categorisation accuracy, $t(101) = 5.58$, $p < .001$. Perceived usefulness showed a marginal difference in favour of the explicit variant ($p = .051$). All other constructs did not differ significantly ($p > .10$).

Non-explicit pillow vs non-explicit standing bag: An independent-samples t-test compared the typical and atypical packaging forms without explicit labelling. Only categorisation accuracy differed significantly, $t(103) = 2.33$, $p = .022$, with the typical form being recognised more accurately.

Explicit pillow vs explicit standing bag: The last independent-samples t-test compared explicit pillow and standing bag designs. As expected, categorisation accuracy was significantly higher for the typical form, $t(100) = 2.75$, $p = .007$. A marginal effect indicated greater attention for the atypical form ($p = .086$).

Conclusion (Study 2)

Study 2 was adjusted by learning from Study 1 and yielded reliable and informative results, mostly reaffirming expectations built on the literature review. The hypothesised logical backbone of the interactions — the four mediating pathways were proven valid. The only difference between the expected model and the results was the role of covariates. In Study 1, FCF had a significant impact on categorisation accuracy (pathway 2), and BCF on adoption of associations (pathway 4). However, these interactions were non-significant in Study 2. Furthermore, in Study 2, FCF became significantly influential on curiosity and appeal, while BCF was found to affect perceived usefulness. These inconsistencies are potentially due to two reasons. Firstly, the number of subjects increased twofold, which might skew the marginal results. Secondly, Study 2 included the label explicitness factor. This independent variable not only alters the packaging design but also explicitly communicates the product itself.

Except for the covariate inconsistencies, Study 2 found three hypotheses unsupported. All of which concerned the newly introduced factor — label explicitness. The most striking case was of the lack of explicitness's impact on curiosity. Actually, form atypicality had no significant effect on curiosity, either. Nevertheless, the isolated comparison between variants yielded interesting results (Figure 90). For non-explicit designs, curiosity rises with packaging atypicality — form appears to be strange for the product. But for the explicitly labelled packaging, the opposite happens. That might be due to mis-categorisation — respondents might have categorised the product as protein powder, hence making the form more mundane. However, this finding correlates perfectly with Hill et al. (2015) concept of mystery and curiosity. They posed that the feeling of mystery-fuelled curiosity is caused by the right balance of provided and hidden information. Meaning that too much revealed information spoils the mystery. While no information at all creates no anchors or leads to spart curiosity in the first place. The experiment's results are clear — a pillow bag, which is an atypical form in respect to protein powder products, with a protein explicit label, which plays the role of a clue, together create a high level of curiosity. On the other hand, a pillow bag with no protein information does not trigger curiosity because there is nothing stimulating mystery — those are but normal fries in a normal packaging. The other two forms follow the same logic. A drum that explicitly contains protein is nothing new to a consumer, except for the potato fries' content. Hence, the explicit drum scores higher than the non-explicit pillow and standing bags.

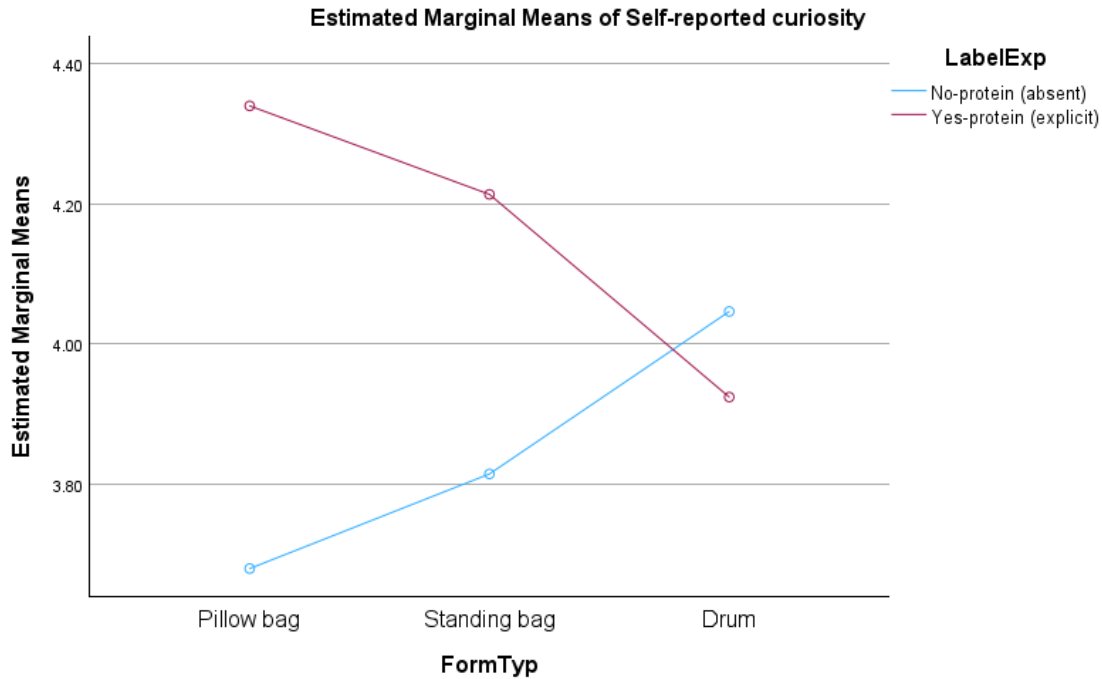


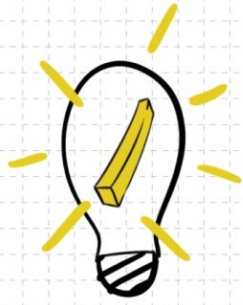
Figure 90 Study 2, curiosity per variant

Another unexpected finding was that the explicit label did not affect how attention-grabbing the product was. The attention-grabbing aspect was completely reliant on the packaging form. Of course, in the commercial world, label design plays a great role in branding and differentiation. The last unsupported hypothesis claimed that people who are more familiar with the borrowed category (protein products) would react more strongly to the explicit cue, resulting in a greater adoption of associations. However, as mentioned earlier, BCF was found to be non-significant in affecting the adoption of associations.

Across all six variants, differences in consumer response are primarily driven by packaging form atypicality, with label explicitness exerting a more selective influence on cognitive evaluations (adoption of associations, congruence, and perceived usefulness). Relative to the two bag formats, the drum consistently stands out: it attracts more attention and stimulates greater adoption of associations, but at the cost of lower perceived ease of use, weaker perceived congruence with the product category, reduced categorisation accuracy, and lower appeal. The two bag forms (typical pillow and moderately atypical standing bag) are generally comparable in terms of appeal, attention and ease of use, and differ mainly in how easily they can be categorised as potato fries. The explicit label design had a major impact on consumers' comprehension of the added protein content. As a result, the respondents were much more likely to adopt the intended associations. However, what was not formulated and hypothesised, prior to the experiment, is the strong and negative impact of explicitness on categorisation accuracy. The more certain the consumers were that the product was protein adjacent, the more likely they were not to categorise the product correctly. This brings us back to the theory of explicit and implicit cues by Granato et al. (2021). The authors claim that different combinations of explicit and implicit cues can have different effects. Figure 89 shows that a non-explicit drum increases the adoption of associations relatively more than the explicit design. The explicit drum design is a combination of a meaningful implicit (drum) and non-associative explicit (label) cues — not the

optimal combination. As a result, the positive impact might have been somewhat limited due to the interaction.

It is important to reiterate that the most typical product (non-protein fries) and typical packaging (pillow bags) were found to be the most appealing. Preference for familiarity was the expected outcome (Zajonc, 1968). The perceived similarity of the bag forms was also anticipated (Orlowski et al., 2022).



Chapter IIX

General discussion

IIX GENERAL DISCUSSION, LIMITATIONS, AND FUTURE RESEARCH

General discussion

The confusing nature of chaos

This experiment reaffirms the fundamental premise that packaging plays a dual role — functional and communicative. The experiment also shows that atypical/chaos packaging is a double-edged sword. As expected, the more atypical the packaging, the more attention-grabbing it becomes. Simultaneously, atypicality causes consumer confusion and leads to the product's incorrect categorisation. These findings replicate the results of Schoormans and Robben (1997). But atypical and chaos packaging are not necessarily the same. This experiment's stimuli were protein-enhanced fries in packaging common for the protein powder category. The product-packaging interaction was strategic and not random, as previously established — chaos packaging is a strategy of utilising atypical packaging to transfer intended associations of the borrowed category to the designed product. In general, the property was proven to work. However, the research finds the potential risk of confusion to be even greater than for just atypical packaging. It is because both the packaging form implicitly communicates product qualities, and so do explicit cues (statements on the label, etc.). A combination of the two communicates the quality so strongly that consumers perceive it as a member of the borrowed product category. In other words, chaos packaging creates a spectrum of cues, attributes, and associations between the product's true category (fries) and the borrowed category (protein). A bag of protein fries in a pillow bag is on the spectrum, but close enough to the intended category for the consumers to categorise the product accurately. However, the combination of the very protein-typical packaging form (drum) and of the explicit label creates an overload of the communicated protein content. As a result, the product is placed on the other side of the spectrum — it appears to the consumers as more protein-powder-like than fries-like. Nevertheless, it is important to reiterate that the confusion due to chaos packaging is not random but rather one-dimensional, in the form of a spectrum between the two categories. As a result, it is manageable through design and thoughtful curation of cues.

General findings

The overview of hypotheses testing can be found in the table below (Table 6). While the immediate findings were discussed in the conclusion subsections of each study, this section highlights the most important general learnings, as well as the unexpected ones.

Table 7 Summary of results, Studies 1 and 2

Hypotheses	Study 1	Study 2
H1a Packaging form atypicality decreases:	/	/
<i>categorization accuracy</i>	✓	✓
<i>perceived ease of use</i>	✓	✓
<i>congruence</i>	✓	✓
H1b Product appeal follows an inverted-U pattern, with moderate atypicality being most appealing.	×	×
H1c Packaging form atypicality increases:	/	/
<i>attention grabbing</i>	✓	✓
<i>curiosity</i>	×	×
<i>adoption (transfer) of associations</i>	✓	✓
<i>perceived usefulness</i>	×	✓
H1d Higher attention leads to higher curiosity, which positively predicts adoption of associations, which in turn positively influences appeal.	-	-
H1e Categorisation accuracy positively predicts appeal.	✓	✓
H1f PEOU has a positive relation with perceived usefulness, which has a positive relation with product appeal.	✓	✓
H1g Congruence moderates the interaction between curiosity and appeal.	×	×
H2a Less typical (more atypical) packaging forms will generate greater attention.	/	✓
H2b: Greater attention will increase curiosity about the product.	/	✓
H2c Greater curiosity will strengthen association adoption (the degree to which the product is perceived as protein/fitness-related).	/	/
H2d Higher association adoption will enhance product appeal.	/	✓
H2e Congruence (of packaging design) is positively influencing product appeal.	/	✓
H2f As packaging becomes less typical, category accuracy (correctly recognising frozen fries) will decrease.	/	✓
H2g Higher category accuracy will positively affect appeal by increasing processing fluency.	/	✓
H2h More atypical packaging will reduce perceived ease of use (PEOU).	/	✓
H2i Higher PEOU will be associated with higher perceived usefulness (PU).	/	✓
H2j Both PEOU and PU will positively influence product appeal.	/	✓
H2k Presence of an explicit protein cue will increase attention to the package.	/	×
H2l Presence of an explicit protein cue will increase curiosity about the product.	/	×
H2m Presence of an explicit protein cue will increase association adoption (stronger “protein/fitness” perception).	/	✓
H2o The effect of the protein cue on association adoption will also be stronger for consumers with higher Borrowed-Category Familiarity (BCF) with protein products.	/	×

Unsupported hypotheses: Some hypotheses were found invalid due to logical flaws in the anticipated interactions between the constructs. For example, H1g was unsupported because the moderation analysis showed non-significant effects between the variables. However, some results were inconsistent with the existing literature. H1b anticipated that atypicality-appeal interaction would take the shape of an inverted-U, with moderate atypical yielding optimal results. However, the most typical design was found most appealing. As later discussed, this might have been a result of experimental limitations. Regardless, the testing of the hypothesis was insufficient. The experiment took the form of a 3x2 design, where the first factor was shape atypicality, and the second factor stood not for design but for product atypicality (innovativeness). Therefore, this project's conclusion is based on only three grades of atypicality, while Schoormans and Robben's (1997) research resulted in 6 (3 atypicality of form x 2 atypicality of label) atypical designs. As a result, assessing a curve using only 3 points is much less accurate than using 6. Most likely due to the same limitations, my results (Figure 91) for appeal and product congruence (which could be compared to) do not follow the results of Blijlevens et al. (2011). Thus, my findings should not be considered as disproving evidence of the existing literature.

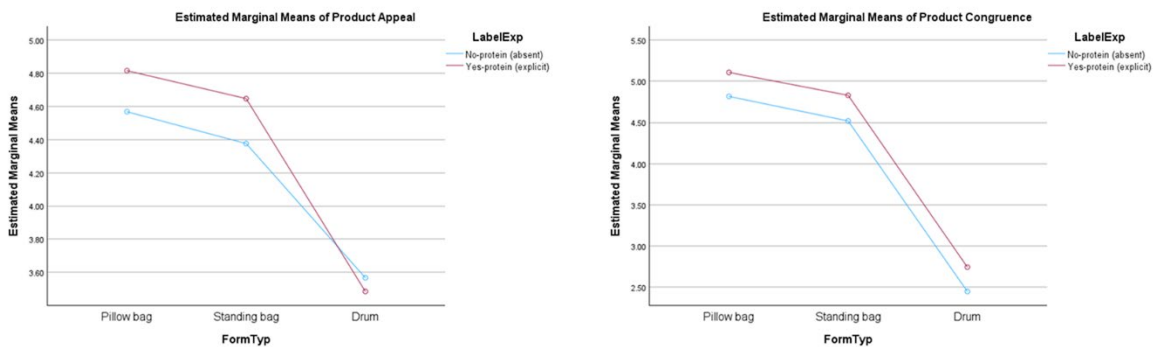


Figure 91 Plots of product appeal and product congruence per variant, n=310

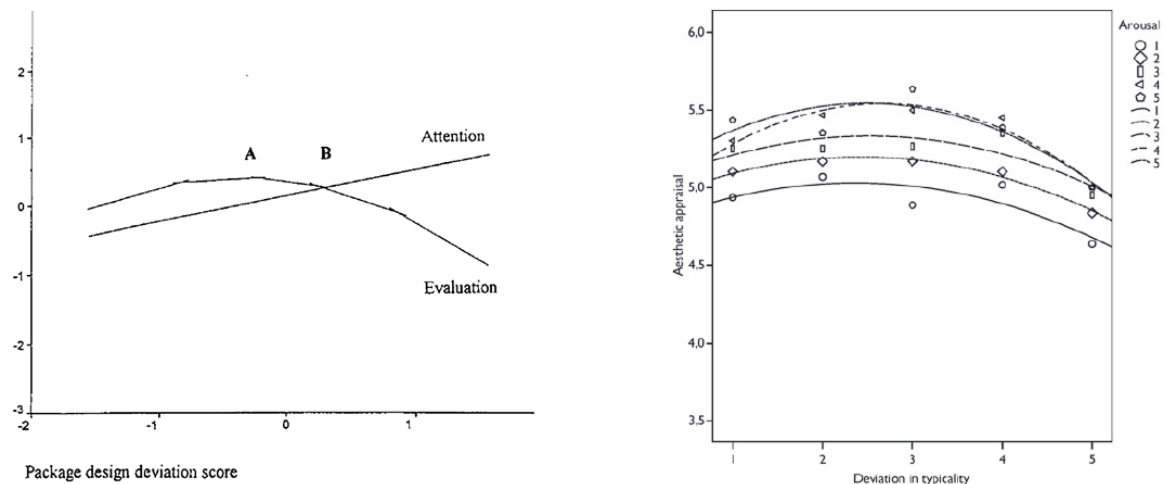


Figure 92 Expected results by Schoormans and Robben (1997) (left) and Blijlevens et al. (2011) (right)

Conceptual model: The original conceptual model was imperfect but mostly explanatory of the role of packaging atypicality, label explicitness, and appeal. At the very beginning, the correlation analysis showed a very close and strong relationship between willingness to pay and product appeal. That was expected (Underwood et al., 2001; Mugge et al., 2014) as the two constructs

are linked by countless researchers — consumers are more likely to purchase a product that they like, rather than a disliked product. Hence, the measure was not incorrect, but unnecessary, as product appeal was a sufficient final dependent variable on its own. However, to my surprise, fitness lifestyle was a completely redundant construct, as it did not significantly correlate with any other. Additionally, it appears that a person does not need to live actively and/or be on a diet to be familiar with the protein product category (BCF). Hence, fitness was removed from the equation and partially replaced by BCF. However, the unexpected results due to consumer profiles did not end here. Both BCF and FCF were expected to be much more omnipresent, consistent and influential across the model. The impact of these profiles varied between Study 1 and 2, but even when significant, their overall effects were always marginal.

Otherwise, the hypothesised roles and interactions between the constructs were found mostly valid. The final model consists of four pathways mediating between the packaging form atypicality and product appeal. As expected, form atypicality was increasing the perceived attention-grabbing of the product, and through the pathway's mediation, eventually building up the product's appeal.

The second pathway found atypicality's negative effect on categorisation accuracy, hence indirectly decreasing appeal. Interestingly, in Study 1 (non-explicit designs), categorisation tended to be higher and more consistent. Even though the individual interactions between form and categorisation accuracy, and categorisation accuracy and appeal were significant, the overall pathway's effect was not. But in Study 2 (non-explicit and explicit designs), the pathway had a significant effect.

The most consistent, throughout the studies, was the third pathway measuring perceived easiness of use (PEOU) and perceived usefulness (PU). As hypothesised, atypicality decreases perceived easiness, while PEOU, PU, and appeal have positive relationships. Hence, atypicality indirectly decreases all the variables. However, what was not expected, or at least formulated, was the impact of the label's explicitness in Study 2, which positively influenced PU. As a result, all explicit designs had consistently higher PU scores than the non-explicit ones.

The last remaining pathway looked into the adoption of associations and product congruence, the most complex interaction in the research. From atypicality, or for the clarification of atypicality for fries' category but typicality for the protein category, increases adoption of associations, which in turn increases product congruence. However, the same atypicality strongly decreases the perceived congruence. This double and opposite effect of atypicality on the constructs eventually results in a negative but minimal impact on appeal. This is a very important finding because it validates the value of the chaos packaging strategy. If the atypical packaging was random and irrelevant to the offered added value (added protein), then no associations would be transferred, while the perceived congruence would significantly suffer. Congruence was found to have the highest impact on the final appeal. Therefore, the failure to mentally justify the new packaging form to the consumers would most likely lead to their rejection.

Answering the research questions

Research question No.1: *To what extent does the degree of packaging atypicality (“chaos”) influence consumers’ ability to correctly recognise and comprehend the product’s category (frozen potato fries)?*

Indeed, atypicality of form was proven to negatively affect categorisation accuracy. However, similarly to Orłowski et al. (2022), the experiment found the typical and moderately atypical forms

(pillow and standing bags) not to differ significantly. This finding reminds us of the importance of 'image mould' (Spence, 2016) categorisation theory.

Research question No.2: *How effective is chaos packaging in transferring or "borrowing" perceived attributes and associations from the categories its packaging format typically represents (e.g., jars, standing pouches), to the focal product?*

Similarly to the answer to the first question, the two bag designs did not differ substantially in transferring the associations. But the drum did. However, if the implicitness of the form's cue was aided by an explicit cue (label), then the adoption of associations would be much stronger and much more common, making a significant difference between the three forms. Therefore, packaging forms do facilitate transfer of associations, but the effectiveness can be strengthened through explicit cues.

Research question No.3: *How does chaos packaging influence consumers' affective responses and perceived value of the product (product evaluation x usefulness x attention)?*

In general, atypicality decreases product appeal both directly and indirectly. Atypicality, by itself, decreases perceived congruence (whether the product and the packaging make sense in the eyes of the consumer), perceived ease of use, and perceived usefulness. However, it also increases the adoption of associations and attention. Furthermore, it is important to remember that chaos packaging does not only consist of an atypical form, but also of a label. The combination of the two and the product inside can create an appealing final offering. While the most atypical form (drum) was found significantly the least appealing, the differences between the two bag forms were not significant.

Literature gap and added value

Product packaging has been researched for decades with a wide range of approaches and goals. Most of the research investigates isolated roles of label design, colour, imagery, etc. or the shapes and sizes of the containers. However, there is very little research on atypical packaging. Atypicality in general was studied by Blijlevens et al. (2011), and atypical packaging by Schoormans and Robben (1997). The results of the two works point towards the optimal balance of atypicality, where too much or too little of it negatively affects perceived product appeal.

Orlowski et al. (2022) and Nesselhauf et al. (2017) were the ones to introduce 'non-traditional' packaging. Both research groups investigated the properties of different wine packaging. Interestingly, Orlowski et al. (2022) found that non-traditional (atypical) forms were less appealing than the traditional ones, countering the previous research. Considering this work as the closest point of reference to this research, my findings fit the literature.

However, the approach and focus of Orlowski et al. (2022) and Nesselhauf et al. (2017), while revolutionary, left many questions unanswered. Firstly, wine is a relatively high-involvement product category, leaving low-involvement categories in the dark. Secondly, the researchers did not investigate the attention-grabbing property of the atypical packaging. From the commercial perspective, attention-grabbing is the major motivation to embrace atypicality in the first place. Additionally, the packaging forms used in their research had various functional benefits ignored by the researchers. *Id est*, a can of wine can hardly be compared to a typical glass bottle of wine. One is a single portion, most likely purchased to be consumed outdoors or in some other dynamic environment, while wine from a bottle is usually poured into wine glasses and shared. Not taking the consumers' 'jobs' into account is a design flaw. At last, their research is not

concerned with the associations the consumers form and “adopt” due to the atypical packaging. By proving that atypical packaging can facilitate the transfer of associations, this research adds yet another argument to approach packaging as a service system (PSS).

On another note, my results show no significant differences in curiosity across the variants, even though positive and significant effects of attention were found on the construct, as well as a subsequent significant impact of curiosity on appeal. This was an unexpected outcome because atypical packaging was anticipated to create a sense of mystery, which in turn would drive curiosity (Hill et al., 2015). This inconsistency between works might be due to two reasons. Firstly, this research did not include DUP (consumers’ desire for unique products) profiling because of an assumption that low-involvement products consumed without the external audience would not fulfil the desire. Meaning that the variable might be affecting the results. The second potential reason behind the discrepancy is that perhaps too many cues were provided to the respondents, in effect spoiling the mystery.

Another added value is generated through the investigation of a low-involvement product category. The experiment was dedicated to frozen fires, an inexpensive and low-involvement category. The stimuli were carefully chosen and designed. All shown products were equal in size, preparation, and consumption. Additionally, all packaging forms were related to the product’s functional benefits (borrowing packaging of the protein powder category). As a result, the research leads to actionable commercial insights on how form atypicality affects appeal, the benefits of attention-grabbing and adoption of associations, and the risks of lower perceived ease of use or congruence. Furthermore, this research implemented a measuring technique practised by market researchers and consultants—T-scope (tachistoscope). Thus, the research offers reliable information on the product categorisation.

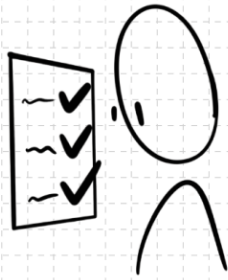
Moreover, this research reaffirms the general beliefs about the role of perceived easiness of learning adoption of radical innovation. Mugge and Dahl (2013) argue that products that both appear as complicated and have many new features are less likely to be adopted than innovative products that seem simple—typical. This theory, in combination with the general understanding that packaging is a medium of communication that can be assessed through a product design lens, motivated the research to utilise user acceptance of information technology theory (Davis, 1989). It was proven that highly atypical packaging is assessed through perceived ease of use and perceived usefulness, with both affecting product appeal.

Limitations and future research

This research faced mostly technical limitations. The experiment took the form of an online survey. For the sake of clarity, based on the learning from the pre-test, subjects were exposed (repeatedly) to only one image of the product. The product in the image was in pristine condition (no crumpling, folding, or anything obscuring the packaging), facing the subject. Therefore, especially in the case of a standing bag, the 3-dimensionality of the stimulus was lost. As a result, it might have been disproportionately harder for respondents to link the standing bag with protein bags. Subsequently, product congruence and adoption of associations might have been underreported. Additionally, the fact that the packaging was shown in perfect conditions detaches the experiment from the commercial reality of the in-store experience, where the packaging crumples and falls, reducing legibility. Furthermore, the experiment shows only one packaging without the context of the shelf/freezer, which has two implications. Firstly, the product is not actively compared to competitors and removes the impact of branding. Secondly, products’ in-store positioning plays the role of a cue as well. If a product is placed in a freezer, it

must be frozen. If it is placed among frozen fries, most likely the product is a member of the category. At last, attention-grabbing was measured using two constructs — self-reported responses and dwell time. Dwell time, time spent on the last and unlimited stimulus exposure, was found to be a non-significant measure. Unsurprisingly, all respondents, who were paid to participate, wanted to progress through the survey as quickly as possible.

Most of the limitations were self-imposed for the sake of experimental consistency, control and simplicity. However, to verify the findings and to make them more commercially relevant, a physical experiment is needed. Firstly, the attention-grabbing property could be measured using eye-tracking. Secondly, the experiment should include competing products and brands. Such an approach would replicate the shopping experience better, as the products would naturally fold, turn, and crumple, while simultaneously competing for the consumer's attention.



Chapter IX Managerial implications

IX MANAGERIAL IMPLICATIONS

General remarks

The theoretical results section explains the precise interactions and measures between the different variables that eventually translate from atypicality into product appeal. While the experiment focused on the role of packaging for standard and protein-enhanced fries, the learnings can be applied to both the existing portfolio, and any potential future line extension.

Surprisingly, this research has discovered an appealing product proposition. The explicit pillow bag group became a control group for the overall product's appeal. According to the results, across the six product/packaging variants, the explicitly protein-infused fries packaged in a pillow bag had the highest scores for multiple constructs (appendix 10.4). Most notably, the variant scored highest in appeal, even higher than the non-explicit counterpart (traditional fries in a traditional packaging). This finding indicates that the idea of a healthier or more sportsy fries might not be as outlandish as previously believed and claimed by the two professional chefs. This finding correlates quite well with the market trends. For example, this month (November 2025) Cheetos and Doritos launched a “healthier” product-line “NKD” (naked) (PepsiCo, 2025). PepsiCo, the owner of the two brands, claims that the new line removed all artificial flavours and dyes.

**SIMPLY
NKD**



Figure 93 NKD packaging design, accessed via pepsi.com

A comparative assessment

In order to visually and comprehensively compare the qualities (variable measures) of the packaging variants, I have translated the results (means) into relative values and visualised them (Figure 94). E.g. explicit pillow bag variant scored highest (4.82) in appeal. Hence, the value becomes the relative 100% in the construct group. In comparison, a non-explicit drum (3.57) is equal to approximately 74% of the max group value. The precise relative scores can be found in the appendix (16010.4 Relative values of constructs). While the significance of differences between the variants was investigated and discussed in chapter 7, this one focuses on the overall practical insights. Incidentally, since curiosity has not significantly differed across the variants, it will not be further discussed in this section. Moreover, it is important to keep in mind that, in general, the higher the score (performance by construct), the better. However, not all constructs are equally relevant to every variant. *Id est*, perceived usefulness and adoption of associations constructs are inherently related to the added protein content. The implication is, if we are trying to assess which of the packaging variants is the most suitable for the protein-enhanced product, then the constructs can be compared indiscriminately. But if the purpose is to assess what packaging form fits regular fries, then it is unreasonable to take explicit variants under consideration at all. Hence, this comparative assessment is divided into two groups, each with a different objective in mind.

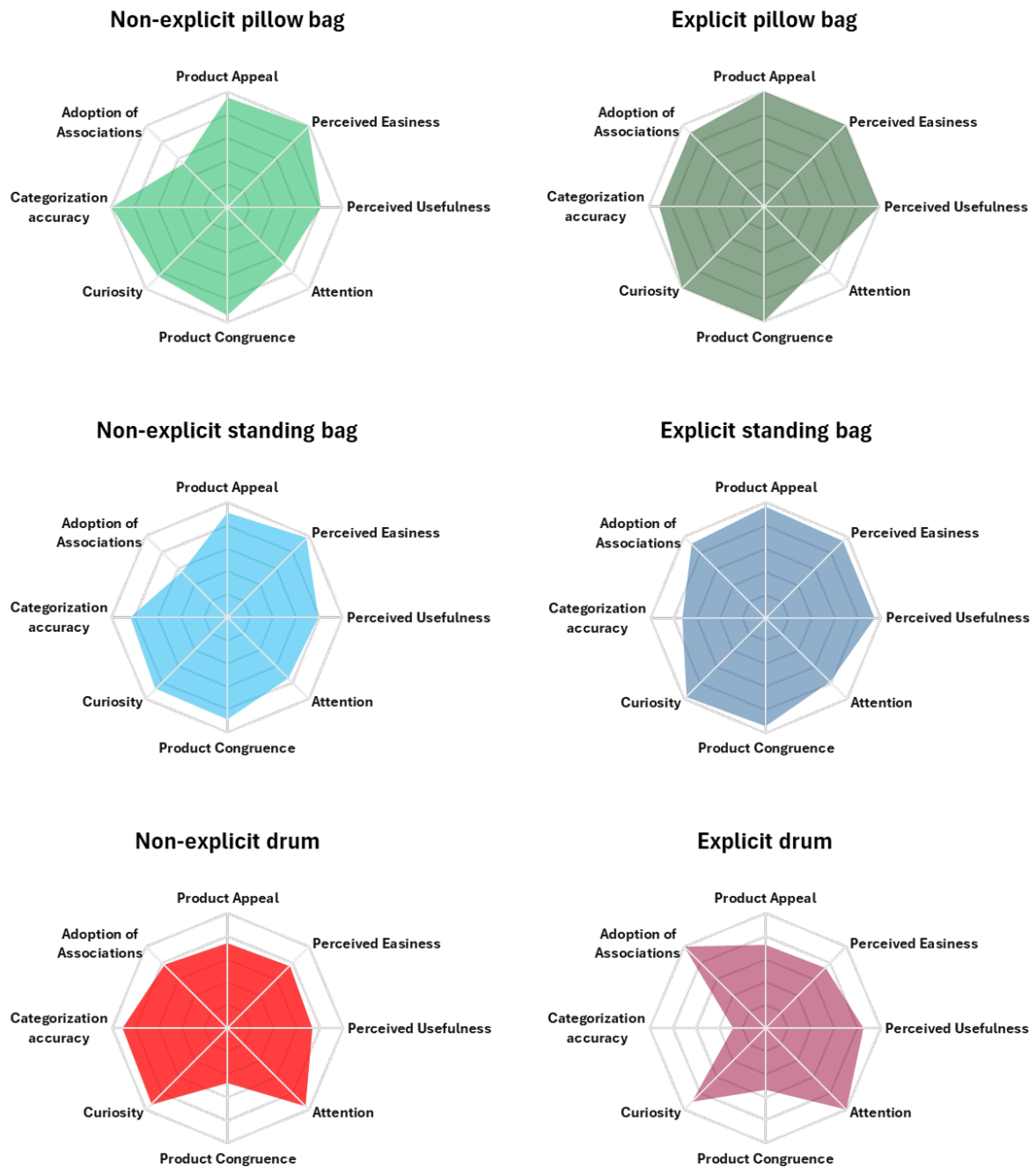


Figure 94 Radar charts of variant properties

Objective 1: Optimal standard potato fries

In Figure 95 we can see that between the two non-explicit bag forms, the pillow bag design generally comes on top. From the data analysis, we know that only the difference in categorisation accuracy is significant. If Lamb Weston were to choose either of the forms for their regular potato fries, then the current packaging (pillow bag) appears to be more advantageous. However, as discussed in the previous chapter, the experiment posed several limitations. Most importantly, the digital stimulus in the form of a single image of a front-facing packaging removes the 3-dimensionality of the design. This has most likely affected the most the standing bag variant. The lack of a complete understanding of what kind of packaging the stimulus shows might have

affected attention and adoption of associations. This limitation is even more probable, considering the issue of collapsing, falling, and crumbling of all fries' packaging on the shelves of the Dutch supermarkets. It is safe to assume that the only standing packaging, in a standing freezer, would draw more initial attention. At last, the very presence of the product among other category products serves as a cue to the consumer—aiding the correct categorisation. While these claims were not empirically tested, they are at least plausible. Therefore, they should be tested in the experiment's iteration.

However, if assumptions are correct, then the standing bag design would come, perhaps significantly, on top. This route appears to be a safe bet. Regardless of whether the chaos packaging is recognised by the consumers and the associations transferred to the product, the gap in categorisation should close and the difference in attention-grabbing further increase (to the benefit of a standing bag). Therefore, a standing bag would perform equally well across all the constructs, while most likely significantly standing out and possibly adopting associations better than the alternative form. In other words, the standing bag form has potentially greater stopping power (attention-grabbing), equal holding power (categorisation, congruence, PEOU), and greater closing power (adoption of associations, PU).

The equation does not account for either costs (manufacturing, marketing, etc.) or branding. However, the branding potential might elevate the reward exponentially, as the packaging can easily be turned into a distinctive asset. The downside of the approach is that the introduction of the new packaging would either need to be selective or encompass the entire portfolio. If the introduction is selective, e.g., only for the hero fries (twisters), then the brand risks a negative response due to packaging form inconsistency. The alternative is to completely replace the pillow bag forms for all products. Such a move would not only require substantial initial investment. If the customer reaction was negative to the change, then the entire portfolio would suffer.

On the other hand, Lamb Weston fries are premium and already the highest priced on the Dutch market, as of 2025 (€2.99/750g products). This appears to be the upper limit of the acceptable price range. The potential embrace of the new packaging inherently implies additional costs. As a result, Lamb Weston would need to either keep the price the same and decrease the profit margin or increase the price, keeping the margin unchanged but risking consumers trading down — substituting LW's product with a cheaper brand or even private label. Based on my consumer research on packaging I cannot make an informed recommendation on which route is more optimal.

Nevertheless, the overall recommendation is to consider standing bags for use but to be wary of the risks and barriers. The moderately atypical packaging offers an opportunity to create a strong distinctive asset, increase brand's mental and physical availability, as well as products' visibility and stopping power. However, the potential costs and negative consequences render the opportunity as high risk and high reward.

Non-explicit standing vs pillow bag

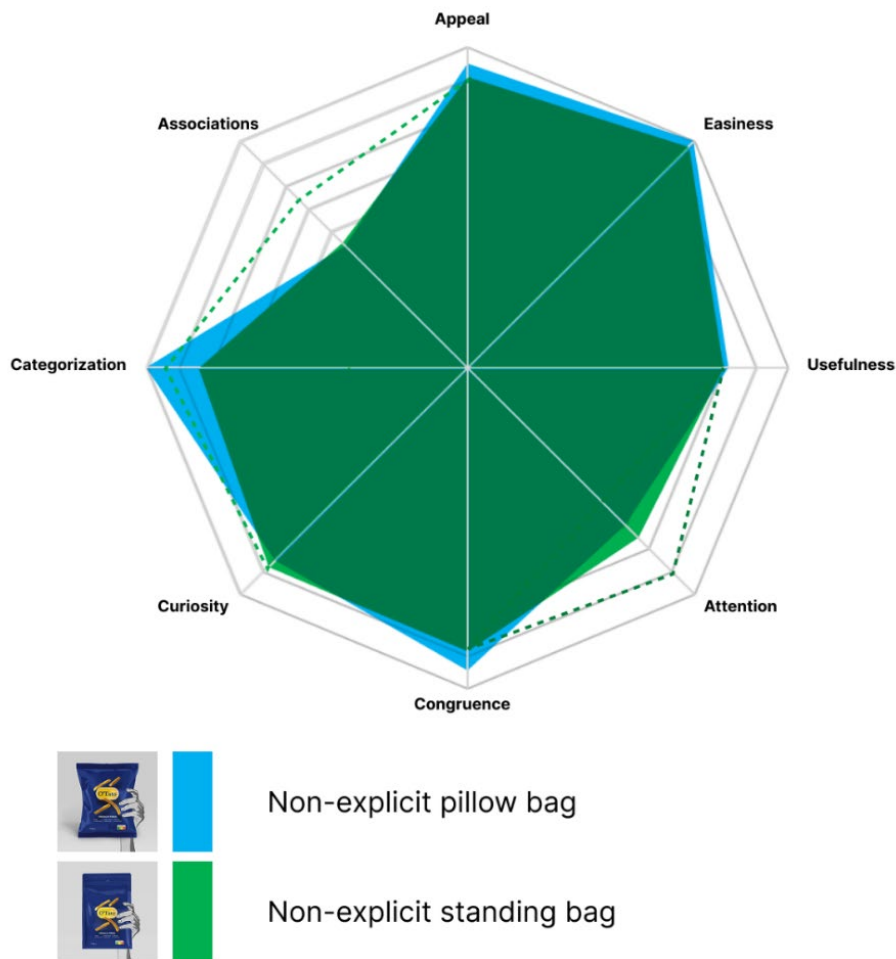
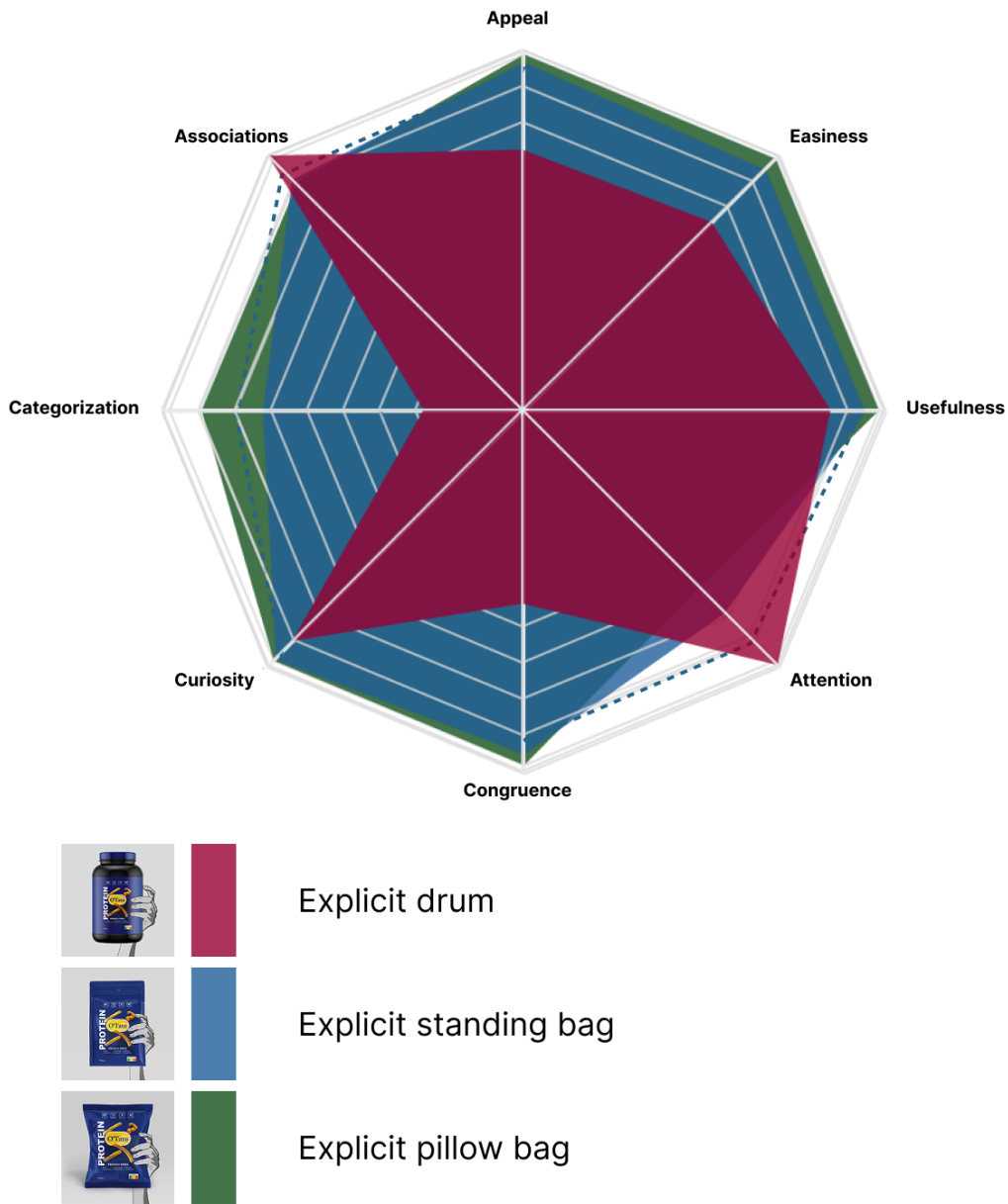


Figure 95 Comparison between pillow and standing bag (both non-explicit)

Objective II: Optimal protein-enhanced potato fries

The second approach to the assessment is searching for the optimal packaging for a new type of product, i.e. protein protein-enhanced frozen fries. This follows the subtyping innovation introduction strategy (Mugge and Dahl, 2013). Figure 96 offers a relative comparison between the three explicitly labelled forms. Drawing back from the previous comparison and the theoretical findings, the two bags tend to perform similarly, while the drum stands out.

Non-explicit standing vs pillow bag



is that consumers purchase the product only a few times a year. Meaning that such a campaign would need to last many months to reach the majority of the category buyers. Of course, prolonged campaigns pose high costs. However, even if the packaging could overcome the barrier, the closing power still lags behind the alternative packaging forms. PEOU, PU, and congruence have a statistically significant effect on product appeal. The drum form is seen as harder to use (e.g. store), the product seems less useful to the consumers, and the packaging seems unfitting for the purpose.

In conclusion, this consumer research shows the form as unsuitable for in-store sales. Furthermore, drums are much more expensive to obtain, store, and move. While the exact prices Lamb Weston could negotiate are not known and dependent on circumstances, an estimation can be made. Container and packaging, an Idaho-based wholesaler of packaging, offers a jar (16 oz + lid) for just under a dollar. For reference, a flat-bottom protein bag (in this research, a standing bag) of the same size (16 oz) is offered for \$0.03-\$0.20, depending on the size of the order (BowePack, 2025). Therefore, the difference in the packaging price is between 5- and 33-fold. These prices do not include costs of filling, transport, etc., and pillow bags are even cheaper to manufacture, move, fill, and seal. Frozen fries are a relatively cheap product category, with an average bag (circa 600 grams) sold for 2-3 Euros. Raising the price of the product by the cost of the container (circa \$0.3-1, depending on the supplier) is likely to render the product fully uncompetitive and both ecologically and business unsustainable.

But packaging does not only feature on the shelves. Most, if not all, of FMCG products are presented in their packaging in the advertisements. As Canadian McCain has shown, packaging form manipulation can be used as a tactic to increase a product's legibility in online offers, as well as social media advertising. Furthermore, Heinz's ketchup for breakfast campaign used the atypical maple syrup bottles not in retail but mostly in advertising, and at a few selected restaurants. Thus, supply, logistics, filling, and other costs can be omitted if the sole purpose of the packaging is marketing. Considering the drum's high attention-grabbing and adoption of association properties, it would represent the new product category very well. If Lamb Weston wanted to establish new 'category entry points' (CEPs) (Romaniuk et al., 2015), i.e. healthy, protein-rich fries for sportsy consumers, then using the drum form in advertising would synergise greatly with a cheaper and more practical actual product packaging. Therefore, I visualised a potential ad for the protein-enhanced product (Figure 97).



Figure 97 Add concept



Figure 98 Billboard mock-up



Figure 99 Poster mock-up

Sales goal: The original roles of packaging are communication and functionality. The two explicit bags have nearly the same communicative scores. The typical form was found to be easier to correctly categorise. Just like in the non-explicit bag comparison, it can be argued that the difference in categorisation accuracy would be narrowed if the consumers had to identify the products in the shopping environment. The same logic follows the stopping power of the standing bag in the context of all other frozen fries uniformly packaged in crumpling pillow bags. This effect is even more likely than previously expected, as the difference in attention-grabbing between the two explicit bags is larger than that of the two non-explicit ones, and already nearly significant ($p = .086$). As a result, the general recommendation for the protein-enhanced fries packaging is the same — take advantage of the shelf’s monotony through adoption of a standing bag.

Since the recommendation is the same as for accomplishing the first objective (how to package regular fries), the same barriers appear for this one. Namely, increased costs of sourcing and filling the packaging. Unlike in the standard fries’ scenario, this packaged product offers the consumer something extra. The hypothetical fries are differentiating themselves with the added protein content. This property, a functional benefit and a unique selling point, is an added value that justifies an increase in price. This phenomenon is present across many product categories, for example, milk (Figure 100). As shown below, Arla charges extra for the same product but with the lactose removed. While Arla is already offering the highest prices for their milk, they have a ceiling of how expensive they can get. That ceiling is bypassed by other competing products like Oatly’s oat drinks, which offer both functional and emotional benefits. As a matter of fact, the frozen fries category has already witnessed such added value/price interactions. For example, Aviko breaks the €2.99 price ceiling with their special sweet potato fries (€3.49 per pack or

€7.8/kg). Another example, in the UK, McCain offers quick fries (microwaveable) for £7.5 per kilogram, in comparison, LW’s product is the most expensive (normal fry) and sells for £5/kg.



Figure 100 A comparison between “milk” products and their prices, images and prices accessed via ah.nl

The implication is two-fold. On one hand, the new innovative product’s breach of the price ceiling of €2.99 is warranted — added proteins, and their infusion into the product, understandably, pose an additional cost to the manufacturer. On the other hand, as the total price increases, the relative ratio of packaging cost and product value decreases, potentially making it more acceptable. At last, the subtyping strategy means that even though the innovative fries might still compete with the standard ones, a new category of “sportsy fries” is created. It is reasonable to indicate the subcategory with a relevant but somewhat distinct packaging. Hence, a standing bag offers the best of both worlds — protein fries can be distinctive from the rest of the basic category level (frozen fries in general) and remain consistent in branding, as the change of the packaging medium does not prevent the product from utilising already established distinctive assets. Additionally, the new product does not negatively impact the consistency of the entire portfolio. All currently available products can be classified as “standard,” as they do not differentiate on the functional benefit level, and remain packaged pillow bags, while the unique product embraces the new packaging.

In conclusion, positioning protein fries in a standing bag represents a low-risk, high-reward strategy. The concept aligns with Lamb Weston’s narrative of “responsible potato enjoyment” and premiumisation, while simultaneously allowing the brand to appropriate a packaging form as a distinctive asset — an unclaimed feat by any competitor in the market. This would function as a clear shelf landmark, increasing the visibility of both the product and the broader Lamb Weston portfolio. Importantly, the initiative does not require discontinuation or modification of the existing products or production processes, thereby limiting operational disruption and reducing risk. By introducing a new, distinctive asset and product offering, Lamb Weston can address an unmet consumer need for healthier and more responsible indulgence, while creating new entry points that remain consistent with existing brand cues. Finally, the move strengthens the corporate (B2B) brand by reinforcing the company’s positioning as innovative and future-oriented. If executed well, this strategy has the potential to enhance both the mental and physical availability of the brand, with the downside limited to the performance of a single product line.

Closing statement

This research has validated chaos packaging as an effective strategy for building product differentiation and a brand’s distinctiveness. Utilisation of the strategy does imply the highest scores in product appeal, but if executed well, it offers greater distinctiveness, mental and

physical availability, stopping, holding, and closing powers. However, the same strategy is not going to work everywhere or for every product, as it is reliant on culture. A standing bag (flat-bottom) might be synonymous with the protein powder category in one region or social group, but not another. Furthermore, the power of associations is both a blessing and a curse. Voodoo Monkey is a perfect example where proper consumer and cultural research was not performed. Their vodka, packaged in pouches identical to the ones for drinks and yoghurts intended for children, sparked a rapid and overwhelming criticism. Even though the brand did not break the law, the outrage and the cultural response were so strong that the government had to intervene and ban the product. Therefore, Lamb Weston must always investigate the existing associations between potentially useful packaging and their respective products.

Thank you for reading.

Matt

X APPENDIX

10.1 Survey Items

~~REMOVED~~. Items and constructs that were crossed out were measured but later removed in the preliminary analysis.

Packaging form: independent variable; 7-point likert scale (1-very untraditional/atypical, 7-very traditional/typical), adapted and custom items.

- Compared to a standard packaging of frozen potato fries, how traditional is the packaging you reviewed? (Orlowski et al., 2022)
- How typical is the shape of the container (packaging) for frozen fries?

Label explicitness: independent variable; 7-point likert scale (1-strongly disagree, 7-strongly agree), custom items.

- The extra protein of this product is clearly communicated.
- The added protein aspect of this product is clearly noticeable.

Attention: mediator; 7-point likert scale (1-strongly disagree, 7-strongly agree), custom items.

- This product would stand out among other items in the store's frozen-food section.
- This packaging would be easy to spot and find in the frozen-food section.
- This container (packaging) shape would stand out among other frozen fries products.
- If I were in a store, this packaging would immediately catch my eye.

While the above items are custom phrased, they refer to items used by Van Rompay and Pruyn (2011). Such as "This brand differentiates itself from competitors through eye-pleasing designs." In addition to the custom, "self-reporting" attention items, the experiment measures the dwell time spent on looking at the stimulus (fourth, unlimited exposure), as dwell time could indicate attention (Duncan et al., 1994).

Curiosity: mediator; 7-point likert scale (1-strongly disagree, 7-strongly agree) All questions are adapted from Hill et al. (2015).

- I am eager to learn more about this product after seeing its packaging.
- I am interested in trying this product after seeing its packaging.
- I have a great desire to know what the product inside is like.

Adoption of associations: mediator; 7-point likert scale (1-strongly disagree, 7-strongly agree), mostly custom.

- This product is healthy (Karnal et al., 2016)
- This product reminds me of fitness/exercise.
- This product makes me think of protein-rich foods.

- This product seems intended for people who care about health or nutrition.
- ~~• This product is healthier than other frozen fries.~~
- ~~• This product is more nutritious than other frozen fries.~~

Category accuracy: [mediator]

- (Three times) What kind of product do you think this package contained?

Perceived ease of use (PEOU): mediator; 7-point likert scale (1-strongly disagree, 7-strongly agree), adapted from Davis (1989).

- ~~• It would be easy for me to understand how to open this package.~~
- I find this packaging easy to use.
- I find this packaging easy to store.
- Overall, I find this product easy to use.

Perceived usefulness: mediator; 7-point likert scale (1-strongly disagree, 7-strongly agree), adapted from Davis (1989).

- Consuming this product would improve my snack (or meal) experience.
- The packaging of this product helps me make healthier or more informed choices.
- This product seems more beneficial than regular fries.
- This product would positively contribute to my fitness or nutrition goals.

Congruence: moderator; 7-point likert scale (1-strongly disagree, 7-strongly agree), adapted and custom items.

- ~~• This packaging fits the product category.~~
- ~~• This container (packaging) shape fits with the product category~~
- The appearance of the packaging matches the characteristics of the product.
- ~~• The shape of the packaging matches the characteristics of the product.~~
- The design and message of this packaging feel like a natural combination.
- All elements of this package design seem to belong together.

While most of the above items were not adopted from any prior research they are phrased to mimic the logic of Van Rompay and Pruyn (2011) e.g., “shape and typeface design of this product connote similar meanings.”

Fitness lifestyle: moderator; 7-point likert scale (1-strongly disagree, 7-strongly agree), adapted and custom items:

- ~~• Being physically active is an important part of who I am. (Reference to Rhodes et al. (2016))~~
- ~~• Calorie levels influence what I eat. (Chandon & Wansink, 2007)~~
- ~~• I exercise or play sports regularly. (reference to Pu et al., 2020)~~

- ~~I regularly exercise at the gym. (reference to Pu et al., 2020)~~
- ~~Eating healthily is important to me. (Chandon & Wansink, 2007)~~

Borrowed category familiarity (BCF): moderator; adopted and custom items.

- ~~I can easily recognize protein-enriched products when I see them. 7-point likert scale (1-strongly disagree, 7-strongly agree)~~
- How familiar are you with high protein foods or supplements in general (e.g., protein powder, bars, drinks, or desserts)? 7-point Likert scale (1- very unfamiliar, 7-very familiar) (Orlowski et al., 2022)
- ~~How often do you buy or consume protein-enriched products (e.g., protein powder, bars, drinks, or desserts)? (1-1 or 2 times a year, 7-several times a week)~~

Frozen fries' category familiarity (FCF): moderator; adapted and custom items.

- How familiar are you with frozen fries in general? 7-point Likert scale (1- very unfamiliar, 7-very familiar) (Orlowski et al., 2022)
- ~~How often have you bought frozen fries in the past 12 months? 7-point scale (0-12+)~~

Appeal: mediator and dependent variable; 7-point Likert scale (1-strongly disagree, 7-strongly agree), all items based on Orlowski et al. (2022).

- The shape of the packaging you reviewed is attractive.
- The product you reviewed is desirable.
- The packaging you reviewed is attractive.

Willingness to pay (WtP): dependent variable; 7-point Likert scale (1-strongly disagree, 7-strongly agree), all based on Orlowski et al. (2022).

- ~~How likely are you to buy these frozen fries? 7-point likert scale (1- very unlikely, 7-very likely)~~
- ~~How likely are you to eat these frozen fries? 1- very unlikely, 7-very likely)~~
- ~~I am willing to try these frozen fries. 7-point likert scale 7-point likert scale (1-strongly disagree, 7-strongly agree)~~
- ~~The packaging of the product would strongly motivate me to buy it. 7-point Likert scale (1-strongly disagree, 7-strongly agree)~~

10.2 Study 2, One-way ANOVA and post hoc comparisons of all constructs by variant

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Product Appeal	Between Groups	84.542	5	16.908	11.122	<.001
	Within Groups	462.141	304	1.520		
	Total	546.682	309			
Perceived Easiness	Between Groups	122.393	5	24.479	18.750	<.001
	Within Groups	396.872	304	1.306		
	Total	519.265	309			
Perceived Usefulness	Between Groups	42.405	5	8.481	5.518	<.001
	Within Groups	467.273	304	1.537		
	Total	509.678	309			
Self-reported attention	Between Groups	137.336	5	27.467	13.415	<.001
	Within Groups	622.434	304	2.047		
	Total	759.769	309			
Product Congruence	Between Groups	348.028	5	69.606	51.187	<.001
	Within Groups	413.387	304	1.360		
	Total	761.415	309			
Self-reported curiosity	Between Groups	15.586	5	3.117	1.372	.235
	Within Groups	690.636	304	2.272		
	Total	706.222	309			
Categorization accuracy	Between Groups	90.765	5	18.153	27.417	<.001
	Within Groups	201.284	304	.662		
	Total	292.049	309			
Adoption of Associations	Between Groups	232.554	5	46.511	30.098	<.001
	Within Groups	469.776	304	1.545		
	Total	702.331	309			
BCF	Between Groups	17.954	5	3.591	1.574	.167
	Within Groups	693.414	304	2.281		
	Total	711.368	309			
FCF	Between Groups	4.995	5	.999	.562	.729
	Within Groups	540.453	304	1.778		
	Total	545.448	309			

Multiple Comparisons

Tukey HSD

Dependent Variable	(I) Experimental condition (1-6)	(J) Experimental condition (1-6)	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Product Appeal	PF	SF	.19208	.24075	.968	-.4984	.8825
		DF	1.00196*	.24538	<.001	.2982	1.7057
		PM	-.24770	.24664	.916	-.9551	.4597
		SM	-.07917	.24185	.999	-.7728	.6144
		DM	1.08435*	.24185	<.001	.3907	1.7780
	SF	PF	-.19208	.24075	.968	-.8825	.4984
		DF	.80988*	.24198	.012	.1159	1.5039
		PM	-.43978	.24326	.462	-1.1375	.2579
		SM	-.27126	.23840	.865	-.9550	.4125
		DM	.89227*	.23840	.003	.2085	1.5760
	DF	PF	-1.00196*	.24538	<.001	-1.7057	-.2982
		SF	-.80988*	.24198	.012	-1.5039	-.1159
		PM	-1.24966*	.24785	<.001	-1.9605	-.5388
		SM	-1.08113*	.24308	<.001	-1.7783	-.3840
		DM	.08239	.24308	.999	-.6148	.7795
	PM	PF	.24770	.24664	.916	-.4597	.9551
		SF	.43978	.24326	.462	-.2579	1.1375
		DF	1.24966*	.24785	<.001	.5388	1.9605
		SM	.16853	.24435	.983	-.5323	.8693
		DM	1.33205*	.24435	<.001	.6313	2.0328
	SM	PF	.07917	.24185	.999	-.6144	.7728
		SF	.27126	.23840	.865	-.4125	.9550
		DF	1.08113*	.24308	<.001	.3840	1.7783
		PM	-.16853	.24435	.983	-.8693	.5323
		DM	1.16352*	.23951	<.001	.4766	1.8504
	DM	PF	-1.08435*	.24185	<.001	-1.7780	-.3907
		SF	-.89227*	.23840	.003	-1.5760	-.2085
		DF	-.08239	.24308	.999	-.7795	.6148
		PM	-1.33205*	.24435	<.001	-2.0328	-.6313
		SM	-1.16352*	.23951	<.001	-1.8504	-.4766
Perceived Easiness	PF	SF	.12927	.22310	.992	-.5106	.7691
		DF	1.35791*	.22739	<.001	.7057	2.0101
		PM	-.01107	.22856	1.000	-.6666	.6444
		SM	.29954	.22412	.764	-.3432	.9423
		DM	1.48193*	.22412	<.001	.8392	2.1247
	SF	PF	-.12927	.22310	.992	-.7691	.5106
		DF	1.22864*	.22425	<.001	.5855	1.8718
		PM	-.14034	.22543	.989	-.7869	.5062
		SM	.17028	.22093	.972	-.4633	.8039
		DM	1.35267*	.22093	<.001	.7191	1.9863
	DF	PF	-1.35791*	.22739	<.001	-2.0101	-.7057
		SF	-1.22864*	.22425	<.001	-1.8718	-.5855
		PM	-1.36898*	.22968	<.001	-2.0277	-.7103
		SM	-1.05836*	.22526	<.001	-1.7044	-.4123
		DM	.12403	.22526	.994	-.5220	.7701
	PM	PF	.01107	.22856	1.000	-.6444	.6666
		SF	.14034	.22543	.989	-.5062	.7869
		DF	1.36898*	.22968	<.001	.7103	2.0277
		SM	.31061	.22644	.744	-.3388	.9600
		DM	1.49300*	.22644	<.001	.8436	2.1424
	SM	PF	-.29954	.22412	.764	-.9423	.3432
		SF	-.17028	.22093	.972	-.8039	.4633
		DF	1.05836*	.22526	<.001	.4123	1.7044
		PM	-.31061	.22644	.744	-.9600	.3388
		DM	1.18239*	.22196	<.001	.5458	1.8190
	DM	PF	-1.48193*	.22412	<.001	-2.1247	-.8392
		SF	-1.35267*	.22093	<.001	-1.9863	-.7191
		DF	-.12403	.22526	.994	-.7701	.5220
		PM	-1.49300*	.22644	<.001	-2.1424	-.8436
		SM	-1.18239*	.22196	<.001	-1.8190	-.5458
Perceived Usefulness	PF	SF	.08361	.24208	.999	-.6107	.7779
		DF	.33157	.24674	.760	-.3761	1.0392
		PM	-.77231*	.24801	.025	-1.4836	-.0610
		SM	-.53598	.24319	.239	-1.2334	.1615
		DM	-1.5862	.24319	.987	-.8561	.5388
	SF	PF	-.08361	.24208	.999	-.7779	.6107
		DF	-.33157	.24674	.760	-.9610	.3057
		PM	.77231*	.24801	.025	.0610	1.4836
		SM	.53598	.24319	.239	-.1615	1.2334
		DM	1.5862	.24319	.987	.8561	2.9183

Perceived Usefulness	PF	SF	.08361	.24208	.999	-.6107	.7779
		DF	.33157	.24674	.760	-.3761	1.0392
		PM	-.77231*	.24801	.025	-1.4836	-.0610
		SM	-.53598	.24319	.239	-1.2334	.1615
		DM	-.15862	.24319	.987	-.8561	.5388
	SF	PF	-.08361	.24208	.999	-.7779	.6107
		DF	.24796	.24332	.911	-.4499	.9458
		PM	-.85591*	.24461	.007	-1.5575	-.1544
		SM	-.61958	.23972	.104	-1.3071	.0679
		DM	-.24223	.23972	.914	-.9297	.4453
	DF	PF	-.33157	.24674	.760	-1.0392	.3761
		SF	-.24796	.24332	.911	-.9458	.4499
		PM	-1.10388*	.24922	<.001	-1.8186	-.3891
		SM	-.86755*	.24442	.006	-1.5686	-.1665
		DM	-.49019	.24442	.342	-1.1912	.2108
	PM	PF	.77231*	.24801	.025	.0610	1.4836
		SF	.85591*	.24461	.007	.1544	1.5575
		DF	1.10388*	.24922	<.001	.3891	1.8186
		SM	.23633	.24570	.930	-.4683	.9410
		DM	.61369	.24570	.128	-.0910	1.3184
	SM	PF	.53598	.24319	.239	-.1615	1.2334
		SF	.61958	.23972	.104	-.0679	1.3071
		DF	.86755*	.24442	.006	.1665	1.5686
		PM	-.23633	.24570	.930	-.9410	.4683
		DM	.37736	.24084	.621	-.3134	1.0681
	DM	PF	.15862	.24319	.987	-.5388	.8561
		SF	.24223	.23972	.914	-.4453	.9297
		DF	.49019	.24442	.342	-.2108	1.1912
		PM	-.61369	.24570	.128	-1.3184	.0910
		SM	-.37736	.24084	.621	-1.0681	.3134
Self-reported attention	PF	SF	-.29929	.27940	.892	-1.1006	.5020
		DF	-1.45725*	.28477	<.001	-2.2740	-.6405
		PM	-.04542	.28624	1.000	-.8663	.7755
		SM	-.50990	.28067	.457	-1.3149	.2951
		DM	-1.69386*	.28067	<.001	-2.4988	-.8889
	SF	PF	.29929	.27940	.892	-.5020	1.1006
		DF	-1.15796*	.28083	<.001	-1.9634	-.3525
		PM	.25387	.28231	.946	-.5558	1.0635
		SM	-.21060	.27667	.974	-1.0041	.5829
		DM	-1.39457*	.27667	<.001	-2.1881	-.6011
	DF	PF	1.45725*	.28477	<.001	.6405	2.2740
		SF	1.15796*	.28083	<.001	.3525	1.9634
		PM	1.41184*	.28764	<.001	.5869	2.2368
		SM	.94736*	.28210	.011	.1383	1.7564
		DM	-.23660	.28210	.960	-1.0457	.5725
	PM	PF	.04542	.28624	1.000	-.7755	.8663
		SF	-.25387	.28231	.946	-1.0635	.5558
		DF	-1.41184*	.28764	<.001	-2.2368	-.5869
		SM	-.46448	.28358	.574	-1.2778	.3488
		DM	-1.64844*	.28358	<.001	-2.4617	-.8351
	SM	PF	.50990	.28067	.457	-.2951	1.3149
		SF	.21060	.27667	.974	-.5829	1.0041
		DF	-.94736*	.28210	.011	-1.7564	-.1383
		PM	.46448	.28358	.574	-.3488	1.2778
		DM	-1.18396*	.27796	<.001	-1.9812	-.3868
	DM	PF	1.69386*	.28067	<.001	.8889	2.4988
		SF	1.39457*	.27667	<.001	.6011	2.1881
		DF	.23660	.28210	.960	-.5725	1.0457
		PM	1.64844*	.28358	<.001	.8351	2.4617
		SM	1.18396*	.27796	<.001	.3868	1.9812
Product Congruence	PF	SF	.29847	.22770	.779	-.3546	.9515
		DF	2.37033*	.23208	<.001	1.7047	3.0359
		PM	-.29185	.23327	.811	-.9609	.3772
		SM	-.01320	.22874	1.000	-.6692	.6428
		DM	2.07486*	.22874	<.001	1.4188	2.7309
	SF	PF	-.29847	.22770	.779	-.9515	.3546
		DF	2.07185*	.22886	<.001	1.4155	2.7282
		PM	-.59033	.23007	.109	-1.2502	.0695
		SM	-.31167	.22548	.738	-.9583	.3350
		DM	1.77638*	.22548	<.001	1.1297	2.4230
	DF	PF	-2.37033*	.23208	<.001	-3.0359	-1.7047
		SF	-2.07185*	.22886	<.001	-2.7282	-1.4155
		PM	-2.66218*	.23441	<.001	-3.3345	-1.9899

Product Congruence	PF	SF	.29847	.22770	.779	-.3546	.9515	
		DF	2.37033*	.23208	<.001	1.7047	3.0359	
		PM	-.29185	.23327	.811	-.9609	.3772	
		SM	-.01320	.22874	1.000	-.6692	.6428	
		DM	2.07486*	.22874	<.001	1.4188	2.7309	
	SF	PF	-.29847	.22770	.779	-.9515	.3546	
		DF	2.07185*	.22886	<.001	1.4155	2.7282	
		PM	-.59033	.23007	.109	-1.2502	.0695	
		SM	-.31167	.22548	.738	-.9583	.3350	
		DM	1.77638*	.22548	<.001	1.1297	2.4230	
	DF	PF	-2.37033*	.23208	<.001	-3.0359	-1.7047	
		SF	-2.07185*	.22886	<.001	-2.7282	-1.4155	
		PM	-2.66218*	.23441	<.001	-3.3345	-1.9899	
		SM	-2.38352*	.22990	<.001	-3.0429	-1.7242	
		DM	-.29547	.22990	.793	-.9548	.3639	
	PM	PF	.29185	.23327	.811	-.3772	.9609	
		SF	.59033	.23007	.109	-.0695	1.2502	
		DF	2.66218*	.23441	<.001	1.9899	3.3345	
		SM	.27865	.23110	.834	-.3841	.9415	
		DM	2.36671*	.23110	<.001	1.7039	3.0295	
	SM	PF	.01320	.22874	1.000	-.6428	.6692	
		SF	.31167	.22548	.738	-.3350	.9583	
		DF	2.38352*	.22990	<.001	1.7242	3.0429	
		PM	-.27865	.23110	.834	-.9415	.3841	
		DM	2.08805*	.22653	<.001	1.4384	2.7377	
	DM	PF	-2.07486*	.22874	<.001	-2.7309	-1.4188	
		SF	-1.77638*	.22548	<.001	-2.4230	-1.1297	
		DF	.29547	.22990	.793	-.3639	.9548	
		PM	-2.36671*	.23110	<.001	-3.0295	-1.7039	
		SM	-2.08805*	.22653	<.001	-2.7377	-1.4384	
	Self-reported curiosity	PF	SF	-.13508	.29431	.997	-.9791	.7090
			DF	-.36693	.29997	.825	-1.2272	.4934
			PM	-.66040	.30151	.245	-1.5251	.2043
			SM	-.53410	.29565	.463	-1.3820	.3138
			DM	-.24479	.29565	.962	-1.0927	.6031
		SF	PF	.13508	.29431	.997	-.7090	.9791
			DF	-.23185	.29582	.970	-1.0803	.6165
			PM	-.52532	.29738	.489	-1.3782	.3276
			SM	-.39902	.29144	.745	-1.2349	.4368
			DM	-.10971	.29144	.999	-.9456	.7261
DF		PF	.36693	.29997	.825	-.4934	1.2272	
		SF	.23185	.29582	.970	-.6165	1.0803	
		PM	-.29347	.30299	.928	-1.1624	.5755	
		SM	-.16717	.29716	.993	-1.0194	.6851	
		DM	.12214	.29716	.998	-.7301	.9744	
PM		PF	.66040	.30151	.245	-.2043	1.5251	
		SF	.52532	.29738	.489	-.3276	1.3782	
		DF	.29347	.30299	.928	-.5755	1.1624	
		SM	.12630	.29871	.998	-.7304	.9830	
		DM	.41561	.29871	.732	-.4411	1.2723	
SM		PF	.53410	.29565	.463	-.3138	1.3820	
		SF	.39902	.29144	.745	-.4368	1.2349	
		DF	.16717	.29716	.993	-.6851	1.0194	
		PM	-.12630	.29871	.998	-.9830	.7304	
		DM	.28931	.29280	.922	-.5504	1.1290	
DM		PF	.24479	.29565	.962	-.6031	1.0927	
		SF	.10971	.29144	.999	-.7261	.9456	
		DF	-.12214	.29716	.998	-.9744	.7301	
		PM	-.41561	.29871	.732	-1.2723	.4411	
		SM	-.28931	.29280	.922	-1.1290	.5504	
Categorization accuracy		PF	SF	.36928	.15888	.188	-.0864	.8250
			DF	.75373*	.16194	<.001	.2893	1.2182
			PM	.21168	.16277	.785	-.2551	.6785
			SM	.64391*	.15961	<.001	.1862	1.1017
			DM	1.67222*	.15961	<.001	1.2145	2.1300
		SF	PF	-.36928	.15888	.188	-.8250	.0864
			DF	.38444	.15970	.157	-.0736	.8425
			PM	-.15760	.16054	.924	-.6180	.3028
			SM	.27463	.15733	.503	-.1766	.7259
			DM	1.30294*	.15733	<.001	.8517	1.7542
	DF	PF	-.75373*	.16194	<.001	-1.2182	-.2893	
		SF	-.38444	.15970	.157	-.8425	.0736	
		PM	-.54204*	.16357	.013	-1.0112	-.0729	
		SM	-.10981	.16042	.984	-.5699	.3503	

Categorization accuracy	PF	SF	.36928	.15888	.188	-.0864	.8250	
		DF	.75373*	.16194	<.001	.2893	1.2182	
		PM	.21168	.16277	.785	-.2551	.6785	
		SM	.64391*	.15961	<.001	.1862	1.1017	
		DM	1.67222*	.15961	<.001	1.2145	2.1300	
	SF	PF	-.36928	.15888	.188	-.8250	.0864	
		DF	.38444	.15970	.157	-.0736	.8425	
		PM	-.15760	.16054	.924	-.6180	.3028	
		SM	.27463	.15733	.503	-.1766	.7259	
		DM	1.30294*	.15733	<.001	.8517	1.7542	
	DF	PF	-.75373*	.16194	<.001	-1.2182	-.2893	
		SF	-.38444	.15970	.157	-.8425	.0736	
		PM	-.54204*	.16357	.013	-1.0112	-.0729	
		SM	-.10981	.16042	.984	-.5699	.3503	
		DM	.91849*	.16042	<.001	.4584	1.3786	
	PM	PF	-.21168	.16277	.785	-.6785	.2551	
		SF	.15760	.16054	.924	-.3028	.6180	
		DF	.54204*	.16357	.013	.0729	1.0112	
		SM	.43223	.16126	.082	-.0303	.8947	
		DM	1.46053*	.16126	<.001	.9980	1.9230	
	SM	PF	-.64391*	.15961	<.001	-1.1017	-.1862	
		SF	-.27463	.15733	.503	-.7259	.1766	
		DF	.10981	.16042	.984	-.3503	.5699	
		PM	-.43223	.16126	.082	-.8947	.0303	
		DM	1.02830*	.15807	<.001	.5750	1.4816	
	DM	PF	-1.67222*	.15961	<.001	-2.1300	-1.2145	
		SF	-1.30294*	.15733	<.001	-1.7542	-.8517	
		DF	-.91849*	.16042	<.001	-1.3786	-.4584	
		PM	-1.46053*	.16126	<.001	-1.9230	-.9980	
		SM	-1.02830*	.15807	<.001	-1.4816	-.5750	
	Adoption of Associations	PF	SF	-.09205	.24273	.999	-.7882	.6041
			DF	-1.16186*	.24740	<.001	-1.8714	-.4523
			PM	-1.77931*	.24867	<.001	-2.4925	-1.0661
			SM	-1.79837*	.24384	<.001	-2.4977	-1.0990
			DM	-2.24177*	.24384	<.001	-2.9411	-1.5424
		SF	PF	.09205	.24273	.999	-.6041	.7882
			DF	-1.06981*	.24397	<.001	-1.7695	-.3701
			PM	-1.68726*	.24526	<.001	-2.3907	-.9839
			SM	-1.70632*	.24036	<.001	-2.3957	-1.0170
			DM	-2.14972*	.24036	<.001	-2.8391	-1.4604
DF		PF	1.16186*	.24740	<.001	.4523	1.8714	
		SF	1.06981*	.24397	<.001	.3701	1.7695	
		PM	-.61745	.24989	.136	-1.3341	.0992	
		SM	-.63651	.24508	.101	-1.3394	.0664	
		DM	-1.07991*	.24508	<.001	-1.7828	-.3770	
PM		PF	1.77931*	.24867	<.001	1.0661	2.4925	
		SF	1.68726*	.24526	<.001	.9839	2.3907	
		DF	.61745	.24989	.136	-.0992	1.3341	
		SM	-.01906	.24636	1.000	-.7256	.6875	
		DM	-.46246	.24636	.418	-1.1690	.2441	
SM		PF	1.79837*	.24384	<.001	1.0990	2.4977	
		SF	1.70632*	.24036	<.001	1.0170	2.3957	
		DF	.63651	.24508	.101	-.0664	1.3394	
		PM	.01906	.24636	1.000	-.6875	.7256	
		DM	-.44340	.24148	.444	-1.1360	.2492	
DM		PF	2.24177*	.24384	<.001	1.5424	2.9411	
		SF	2.14972*	.24036	<.001	1.4604	2.8391	
		DF	1.07991*	.24508	<.001	.3770	1.7828	
		PM	.46246	.24636	.418	-.2441	1.1690	
		SM	.44340	.24148	.444	-.2492	1.1360	
BCF		PF	SF	-.57516	.29490	.374	-1.4209	.2706
			DF	-.53294	.30057	.485	-1.3950	.3291
			PM	-.55702	.30212	.439	-1.4235	.3094
			SM	-.59822	.29625	.334	-1.4479	.2514
			DM	-.12653	.29625	.998	-.9762	.7231
		SF	PF	.57516	.29490	.374	-.2706	1.4209
			DF	.04222	.29641	1.000	-.8079	.8923
			PM	.01814	.29798	1.000	-.8365	.8727
			SM	-.02306	.29202	1.000	-.8606	.8145
			DM	.44864	.29202	.641	-.3889	1.2862
	DF	PF	.53294	.30057	.485	-.3291	1.3950	
		SF	-.04222	.29641	1.000	-.8923	.8079	
		PM	-.02408	.30359	1.000	-.8948	.8466	

		PM	.46246	.24636	.418	-.2441	1.1690
		SM	.44340	.24148	.444	-.2492	1.1360
BCF	PF	SF	-.57516	.29490	.374	-1.4209	.2706
		DF	-.53294	.30057	.485	-1.3950	.3291
		PM	-.55702	.30212	.439	-1.4235	.3094
		SM	-.59822	.29625	.334	-1.4479	.2514
		DM	-.12653	.29625	.998	-.9762	.7231
		SF	.57516	.29490	.374	-.2706	1.4209
	SF	DF	.04222	.29641	1.000	-.8079	.8923
		PM	.01814	.29798	1.000	-.8365	.8727
		SM	-.02306	.29202	1.000	-.8606	.8145
		DM	.44864	.29202	.641	-.3889	1.2862
		DF	.53294	.30057	.485	-.3291	1.3950
		SF	-.04222	.29641	1.000	-.8923	.8079
	PM	PM	-.02408	.30359	1.000	-.8948	.8466
		SM	-.06528	.29775	1.000	-.9192	.7887
		DM	.40642	.29775	.748	-.4475	1.2604
		PF	.55702	.30212	.439	-.3094	1.4235
		SF	-.01814	.29798	1.000	-.8727	.8365
		DF	.02408	.30359	1.000	-.8466	.8948
	SM	SM	-.04120	.29931	1.000	-.8996	.8172
		DM	.43050	.29931	.704	-.4279	1.2889
		PF	.59822	.29625	.334	-.2514	1.4479
		SF	.02306	.29202	1.000	-.8145	.8606
		DF	.06528	.29775	1.000	-.7887	.9192
		PM	.04120	.29931	1.000	-.8172	.8996
DM	DM	.47170	.29338	.594	-.3697	1.3131	
	PF	.12653	.29625	.998	-.7231	.9762	
	SF	-.44864	.29202	.641	-1.2862	.3889	
	DF	-.40642	.29775	.748	-1.2604	.4475	
	PM	-.43050	.29931	.704	-1.2889	.4279	
	SF	-.47170	.29338	.594	-1.3131	.3697	
FCF	PF	SF	.10566	.26035	.999	-.6410	.8523
		DF	.08863	.26536	.999	-.6724	.8497
		PM	-.14566	.26672	.994	-.9106	.6193
		SM	.15353	.26154	.992	-.5966	.9036
		DM	.26674	.26154	.911	-.4834	1.0168
		SF	-.10566	.26035	.999	-.8523	.6410
	SF	DF	-.01704	.26168	1.000	-.7675	.7335
		PM	-.25132	.26307	.931	-1.0058	.5032
		SM	.04787	.25781	1.000	-.6915	.7873
		DM	.16108	.25781	.989	-.5783	.9005
		DF	-.08863	.26536	.999	-.8497	.6724
		SF	.01704	.26168	1.000	-.7335	.7675
	PM	PM	-.23429	.26803	.952	-1.0030	.5344
		SM	.06491	.26287	1.000	-.6890	.8188
		DM	.17811	.26287	.984	-.5758	.9320
		PF	.14566	.26672	.994	-.6193	.9106
		SF	.25132	.26307	.931	-.5032	1.0058
		DF	.23429	.26803	.952	-.5344	1.0030
	SM	SM	.29919	.26424	.868	-.4587	1.0570
		DM	.41240	.26424	.625	-.3455	1.1703
		PF	-.15353	.26154	.992	-.9036	.5966
		SF	-.04787	.25781	1.000	-.7873	.6915
		DF	-.06491	.26287	1.000	-.8188	.6890
		PM	-.29919	.26424	.868	-1.0570	.4587
DM	DM	.11321	.25901	.998	-.6296	.8561	
	PF	-.26674	.26154	.911	-1.0168	.4834	
	SF	-.16108	.25781	.989	-.9005	.5783	
	DF	-.17811	.26287	.984	-.9320	.5758	
	PM	-.41240	.26424	.625	-1.1703	.3455	
	SF	-.11321	.25901	.998	-.8561	.6296	

*. The mean difference is significant at the 0.05 level.

10.3 Descriptives per condition, Study 2

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Product Appeal	PF	51	4.5686	1.00509	.14074	4.2859	4.8513	2.00	6.33
	SF	54	4.3765	1.23378	.16790	4.0398	4.7133	1.00	7.00
	DF	50	3.5667	1.60392	.22683	3.1108	4.0225	1.00	6.67
	PM	49	4.8163	1.14879	.16411	4.4864	5.1463	2.33	7.00
	SM	53	4.6478	.92546	.12712	4.3927	4.9029	3.00	6.33
	DM	53	3.4843	1.36589	.18762	3.1078	3.8608	1.00	7.00
	Total	310	4.2409	1.33011	.07555	4.0922	4.3895	1.00	7.00
Perceived Easiness	PF	51	5.7712	.92494	.12952	5.5111	6.0314	3.33	7.00
	SF	54	5.6420	.91310	.12426	5.3927	5.8912	3.33	7.00
	DF	50	4.4133	1.36951	.19368	4.0241	4.8025	1.33	7.00
	PM	49	5.7823	1.19325	.17046	5.4396	6.1251	1.33	7.00
	SM	53	5.4717	.86833	.11927	5.2324	5.7110	3.67	7.00
	DM	53	4.2893	1.45743	.20019	3.8876	4.6910	1.00	7.00
	Total	310	5.2269	1.29633	.07363	5.0820	5.3718	1.00	7.00
Perceived Usefulness	PF	51	3.4216	.98804	.13835	3.1437	3.6995	1.25	5.00
	SF	54	3.3380	1.16772	.15891	3.0192	3.6567	1.00	6.75
	DF	50	3.0900	1.28051	.18109	2.7261	3.4539	1.00	6.75
	PM	49	4.1939	1.37051	.19579	3.8002	4.5875	1.00	6.50
	SM	53	3.9575	1.35584	.18624	3.5838	4.3313	1.00	6.75
	DM	53	3.5802	1.24110	.17048	3.2381	3.9223	1.00	6.25
	Total	310	3.5944	1.28431	.07294	3.4508	3.7379	1.00	6.75
Self-reported attention	PF	51	3.8627	1.39402	.19520	3.4707	4.2548	1.25	7.00
	SF	54	4.1620	1.55494	.21160	3.7376	4.5865	1.00	7.00
	DF	50	5.3200	1.64677	.23289	4.8520	5.7880	1.00	7.00
	PM	49	3.9082	1.40932	.20133	3.5034	4.3130	1.25	6.50
	SM	53	4.3726	1.28192	.17609	4.0193	4.7260	1.00	6.75
	DM	53	5.5566	1.26685	.17402	5.2074	5.9058	1.50	7.00
	Total	310	4.5339	1.56806	.08906	4.3586	4.7091	1.00	7.00
Product Congruence	PF	51	4.8170	1.10215	.15433	4.5070	5.1270	2.33	6.33
	SF	54	4.5185	1.09825	.14945	4.2188	4.8183	1.00	6.33
	DF	50	2.4467	1.26815	.17934	2.0863	2.8071	1.00	6.00
	PM	49	5.1088	1.22359	.17480	4.7574	5.4603	2.00	7.00
	SM	53	4.8302	.92363	.12687	4.5756	5.0848	2.00	6.00
	DM	53	2.7421	1.34234	.18439	2.3721	3.1121	1.00	6.00
	Total	310	4.0763	1.56975	.08916	3.9009	4.2518	1.00	7.00
Self-reported curiosity	PF	51	3.6797	1.25956	.17637	3.3255	4.0340	1.33	7.00
	SF	54	3.8148	1.56302	.21270	3.3882	4.2414	1.00	7.00
	DF	50	4.0467	1.55913	.22049	3.6036	4.4898	1.00	6.67
	PM	49	4.3401	1.56123	.22303	3.8917	4.7886	1.00	7.00
	SM	53	4.2138	1.50085	.20616	3.8002	4.6275	1.00	6.33
	DM	53	3.9245	1.57252	.21600	3.4911	4.3580	1.00	7.00
	Total	310	4.0000	1.51179	.08586	3.8310	4.1690	1.00	7.00
Categorization accuracy	PF	51	2.3137	.81216	.11373	2.0853	2.5421	.00	3.00
	SF	54	1.9444	.81070	.11032	1.7232	2.1657	.00	3.00
	DF	50	1.5600	.90711	.12829	1.3022	1.8178	.00	3.00
	PM	49	2.1020	.74288	.10613	1.8887	2.3154	1.00	3.00
	SM	53	1.6698	.83748	.11504	1.4390	1.9007	.00	3.00
	DM	53	.6415	.76194	.10466	.4315	.8515	.00	2.00
	Total	310	1.6984	.97218	.05522	1.5897	1.8070	.00	3.00
Adoption of Associations	PF	51	2.5931	1.17788	.16494	2.2619	2.9244	1.00	5.75
	SF	54	2.6852	1.31140	.17846	2.3272	3.0431	1.00	5.50
	DF	50	3.7550	1.28024	.18105	3.3912	4.1188	1.00	6.50
	PM	49	4.3724	1.27284	.18183	4.0068	4.7381	1.25	6.25
	SM	53	4.3915	1.41124	.19385	4.0025	4.7805	1.00	6.75
	DM	53	4.8349	.95694	.13145	4.5711	5.0987	2.50	6.75
	Total	310	3.7685	1.50762	.08563	3.6001	3.9370	1.00	6.75

10.4 Relative values of constructs

Variant:	Non-explicit pillow bag
Construct	Relative value
Product Appeal	94.85709538
Perceived Easiness	99.80853518
Perceived Usefulness	81.58484805
Attention	69.51629548
Product Congruence	94.28735542
Curiosity	84.78394493
Categorization accuracy	100
Adoption of Associations	53.6336681

Variant:	Explicit pillow bag
Construct	Relative value
Product Appeal	100
Perceived Easiness	100
Perceived Usefulness	100
Attention	70.33366827
Product Congruence	100
Curiosity	100
Categorization accuracy	90.85091664
Adoption of Associations	90.43504231

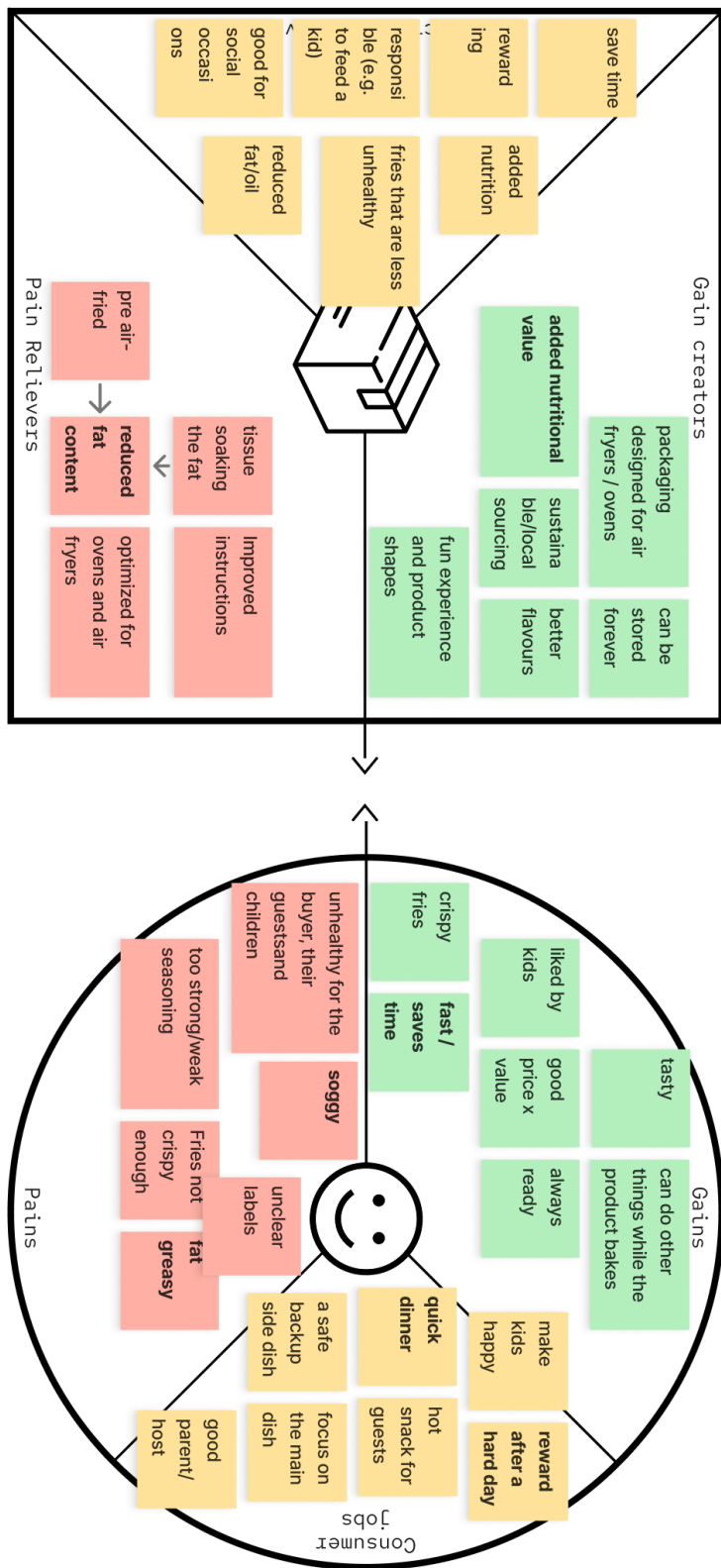
Variant:	Non-explicit standing bag
Construct	Relative value
Product Appeal	90.86890563
Perceived Easiness	97.57298475
Perceived Usefulness	79.59133099
Attention	74.90253411
Product Congruence	88.44503625
Curiosity	87.89620341
Categorization accuracy	84.03954802
Adoption of Associations	55.53748871

Variant:	Explicit standing bag
Construct	Relative value
Product Appeal	96.50090609
Perceived Easiness	94.6281909
Perceived Usefulness	94.36487169
Attention	78.69269949
Product Congruence	94.54563726
Curiosity	97.08996274
Categorization accuracy	72.16981132
Adoption of Associations	90.82926829

Variant:	Non-explicit drum
Construct	Relative value
Product Appeal	74.05367232
Perceived Easiness	76.32470588
Perceived Usefulness	73.67883212
Attention	95.74193548
Product Congruence	47.89081225
Curiosity	93.23824451
Categorization accuracy	90.85091664
Adoption of Associations	77.66439024

Variant:	Explicit drum
Construct	Relative value
Product Appeal	72.34303379
Perceived Easiness	74.17980022
Perceived Usefulness	85.36702933
Attention	100
Product Congruence	53.67434615
Curiosity	90.4240847
Categorization accuracy	27.7262552
Adoption of Associations	100

10.5 Value proposition canvas (large)



10.6 Original brief:

Title

Shaping perceptions: The influence of packaging format on brand positioning and category perception in fast

Introduction

Within the FMCG industry, packaging significantly shapes consumer perceptions of brands, products, and their qualities (Steenis et al., 2017). This influence is crucial in competitive, fast-paced shopping environments, as most purchasing decisions occur spontaneously at points of sale (Schoormans & Robben, 1997). Packaging research has traditionally emphasized label design, graphics (Gunaratne et al., 2019), branding communication, and other visual attributes. Structural packaging qualities, including materials (Lindh et al., 2015), shapes (Postlon et al., 2021), and textures, have also been explored. Yet, existing research typically examines these attributes within an isolated packaging category.

This project addresses a gap by investigating consumer perceptions related to packaging types/formats—such as beverages sold in milk cartons versus cans—and their role in product and brand positioning. Focusing specifically on Lamb Weston’s B2C retail potato products, this research aims to leverage packaging formats strategically to strengthen brand positioning and potentially alter consumer perceptions within the potato product category.

Key opportunities include utilizing innovative packaging formats to enhance brand equity and differentiate Lamb Weston from competitors. Practical constraints in packaging, manufacturing, and logistics exist but may be managed through solutions like outsourcing packing operations to co-packers (Dube, 2021). However, this project primarily emphasizes consumer perception and potential branding benefits rather than technical packaging functionalities, following the approach of Schoormans and Robben (1997).

Methodologically, the research begins with a qualitative assessment of perceived qualities of different packaging categories. A subsequent quantitative study will measure how consumers attribute these identified qualities to specific packaging types. Ultimately, integrating these insights with existing packaging research will guide the optimal design recommendations for Lamb Weston.

Problem Definition

This project addresses a gap in understanding how packaging formats—beyond visual design or materials—influence consumer perceptions of FMCG brands and product categories. While existing research focuses on graphics, labels, and materials (e.g., Ampuero & Vila, 2006; Granato et al., 2021), little is known about how different packaging types (e.g., cartons vs. cans) affect perceived quality, brand positioning, and category identity. The first goal is to deepen academic and practical insight into this topic. The second is to apply these insights to Lamb Weston, a brand that positions itself as premium, innovative, and heritage-rich. The aim is to explore how packaging format could help differentiate its potato products and strengthen consumer perception.

This work draws on categorization theory (Gentner, 1983), holistic design principles (Orth & Malkewitz, 2008), and research on packaging communication and authenticity (Underwood & Klein, 2002; Beverland, 2005; Mugge et al., 2014). However, scholars also caution against over-differentiation, which may signal low quality or confuse consumers (Schoormans & Robben, 1997; Romaniuk et al., 2015). By investigating consumers’ cognitive and emotional responses to

packaging formats, the project aims to offer strategic recommendations for Lamb Weston and contribute to the broader literature on packaging and perception.

Assignment

Design a prototype proposal (format, material, and visual design) to validate and demonstrate the influence of packaging type/format on brand positioning and category perception for Lamb Weston within the FMCG consumer context.

To achieve this, I will first extensively review relevant literature on packaging formats, consumer perception, brand positioning, and category theory. This literature analysis will inform market and consumer research, employing both qualitative and quantitative methods (interviews, surveys, experimental testing) to understand consumer cognitive and emotional responses. Subsequently, practical prototypes showcasing specific packaging format innovations will be developed, iteratively tested, and validated with consumers and stakeholders to clearly demonstrate the relationship between packaging format, brand positioning, and category perception, aligned with Lamb Weston's strategic ambitions. Another anticipated subproduct will be exploration and formulation of consumer's perceptions and associations of packaging types (Steenis et al. in 2017 touched on this).

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