Società Italiana Marketing

Trasformazione digitale dei mercati: il Marketing nella creazione di valore per le imprese e la società

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PROCEEDINGS

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"TRASFORMAZIONE DIGITALE DEI MERCATI: IL MARKETING NELLA CREAZIONE DI VALORE PER LE IMPRESE E LA SOCIETÀ"

XVIII SIM Conference
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Mahboobeh Davaei, Marjaana Gunkel, Valerio Veglio, Vas Taras

ORE 9.15 The role of corporate governance in the growth process of born globals.
Maria Chiarvesio, Rubina Romanello

ORE 9.30 The impact of Industry 4.0 on SMEs' export.
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Melanie Krenn

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ORE 11.30 Art-based stimuli for consumer research emotion expression.
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ORE 10.30 A network perspective on co-Branding campaigns: evidence from the fashion industry.
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Daniel Schepis - UWA Business School

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ORE 10.00 Il ruolo dell'intelligenza artificiale nella gestione del customer journey: evidenze dalle imprese industriali servitizzate.
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ORE 10.30 Digital Servitization in the fashion industry: opportunity and drivers for SMEs with particular focus to COVID-19 period.
Daniela Corsaro, Valerio D'Amico, Isabella Maggioni

ORE 10.45 **INVITED TALK** - "Small change, wide impact: challenges of introducing bioplastics to existing food packaging networks."
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ORE 11.30 Variability in the scope of key account management.
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ORE 11.45 Tendering processes in public procurement projects: a case study.
Elisa Carloni, Roberta Bocconcelli, Alessandro Pagano

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ORE 9.30 Consumers' shopping in person during the risk of contagion: the beneficial effects of new technology during COVID-19 pandemic.
Eleonora Pantano, Daniele Scarpi, Luke Devereux, Virginia Vannucci

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The impact on buying behavior in grocery stores.
Alessio Di Leo, Simone Bellucci

ORE 10.00 'The game wears luxury'. The use of gamification by luxury multi-Brands online retailers.
Matilde Milanesi, Simone Guercini, Andrea Runfola

ORE 10.15 Brand authenticity and omnichannel retailing: conceptual dissonance and emerging research directions.
Giada Salvietti, Silvia Ranfagni, Marco Ieva, Cristina Ziliani

ORE 10.30 The role of store Brand love in online shopping behavior. An application of the S-O-R model to the online fashion retailing.
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ORE 10.45 Shopping behaviour inside specialized stores: how to promote impulsive purchases among heavy and light users.
Benedetta Grandi, Maria Grazia Cardinali

ORE 11.00 E-grocery as the near future of food retailing: a bibliometric study and literature review.
Alessandro Iuffmann Ghezzi

ORE 11.15 Supply Chain Resilience: il punto di vista dei carrier e dei service provider.
Francesca Faggioni, Marco Valerio Rossi

ORE 11.30 Supply Chain Resilience: risultati preliminari di una systematic literature review.
Francesca Faggioni, Marco Valerio Rossi

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Mario D'Arco, Vittoria Marino, Riccardo Resciniti

ORE 9.15 Online Community Feedback and Image of Tourism Places.
Muhammad Muzamil Sattar

ORE 9.30 Tradizionalità percepita e ruolo del materialismo: uno studio sull'ospitalità di lusso.
Andrea Sestino, Giuseppe Colella, Cesare Amatulli

ORE 9.45 "Zoom photo-taking as a new trend in gastronomy e-Tourism".
Angela Beccanulli, Silvia Biraghi, Rossella Gambetti

ORE 10.00 Developing relationships to survive the COVID-19 crisis: the case of eLearning in tourism supply chain".
Silvia Gallegati, Lucia Pizzichini, Valerio Temperini, Gian Luca Gregori

ORE 10.15 Determinants of heritage destination loyalty during the COVID-19 pandemic period.
M. Irene Prete, Luigi Piper, Lucrezia Maria de Cosmo, Gianluigi Guido

ORE 10.30 Towards an independent corporate museum? Insights from Europe and Italy.
Annamaria Esposito, Angela Besana, Chiara Fisichella

ORE 10.45 Factors influencing travel during the COVID Pandemic 2021: a qualitative approach.
Ilenia Bregoli, Marcello Atzeni

ORE 11.00 Perceived fears, stress overload and health status in travelling intention: a new framework at the time of COVID-19.
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ORE 11.15 Does sustainability engagement enhance tour operators' performances?
Gianluca Goffi, Tonino Pencarelli, Lorenzo Masiero

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Marco Bassan

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ORE 9.15 Innovazione nel settore alberghiero: un'analisi del contesto riminese.
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ORE 9.30 Sustainability in MNCs: the relation between subsidiaries and headquarters.
Stefano Franco, Alfredo Valentino, Matteo Caroli

ORE 9.45 Nature goes Digital: COVID-19, Instagram and Gardens in Everyday Enactment.
Serena Volo, Anna Irimias

ORE 10.00 Customer's perspective on front-line service employees with disabilities: The role of interaction and emotions.
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ORE 10.15 Global risk, local attachment: investigating tourists' staycation intention during a pandemic.

Marco Pichierri, Pierluigi Passaro, Luca Petruzzellis

ORE 10.30 Does COVID-19 impact on cultural consumption? The role of digital experiences.
Elena Bonel, Eleonora Di Maria, Mauro Capestro

ORE 10.45 Digital marketing and artisanship: evidence of the conceptualisation of the craftsmanship within craft guilds' websites.
Alessandra Ricci

ORE 11.00 Digitalizzazione del turismo tra minacce e opportunità.
Loretta Battaglia, Laura Gavinelli, Elena Cedrola, Valentina Danneo

ORE 11.15 Modelling TRA and HBM theories to examine COVID-19 vaccine intention: a study of UK young people in the misinformation age.
Nigel L.Williams, Giancarlo Fedeli, T. H. Hai Nguyen, Philipp Wassler

ORE 11.30 La teoria degli stakeholder come modello di sviluppo sostenibile nel turismo.
Lorenza Gerardi

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Charles Alves de Castro, Isobel O'Reilly, Aiden Carthy

ORE 9.15 What is a phygital sporting event? evidence from the world alpine ski championships cortina 2021 opening ceremony.
Niccolò Piccioni, Chiara Bartoli, Costanza Nosi, Alberto Mattiacci

ORE 9.30 Reconfigurations of open supply chains.
Maria Rosaria Marcone

ORE 9.45 Valutazione della user experience nel canale digitale. Il contributo di metodi 'non invasivi'.
Luca Giraldi, Elena Cedrola, Sofia Coacci

ORE 10.00 Transitioning to advanced digital services: phased business model innovations in manufacturing.
Marco Paiola, Eleonora Di Maria

ORE 10.15 Co-Production in public-private partnerships for eHealth. La co-produzione nel partenariato pubblico-privato per l'eHealth.
Antonio Pallotti

ORE 10.30 The use of Virtual Reality in product research: a preliminary analysis of the literature.
Generoso Branca

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Francesca De Canio, Elisa Martinelli, Margherita Peruzzini, Sara Cavallaro

ORE 11.00 Innovazioni vincenti: il ruolo del tipo di contest e dei vincoli temporali sulla creatività?
Ernesto Cardamone, Veronica Marozzo, Gaetano "Nino" Miceli, Maria Antonietta Raimondo

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Davide Pellegrini, Simone Aiolfi, Silvia Bellini

ORE 11.30 Autonomia e tranquillità: i benefit dell'utilizzo di Smart Object per consumatori anziani (e per le loro famiglie).
Luigi Monsurrò, Luca Dezi

ORE 11.45 L'importanza della fase interpretativa nelle ricerche di neuromarketing per innovare il marketing digitale e strategico.
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ORE 12.00 The e-HRM sharing platforms, their ecosystem and marketing approach: a bibliometric analysis.
Chiara Ottolenghi

ORE 12.15 Blockchain in food and beverage industry: preliminary results of a systematic literature review.
Martina Pellegrino, Sara Bartoloni, Federica Pascucci

ORE 12.30 Exploring the CRM adoption from a vendor perspective. Initial findings from an empirical study.
Alessandro Cinti, Andrea Sabatini, Andrea Perna, Gian Luca Gregori

ORE 12.45 I processi innovativi aziendali e la rivoluzione della manifattura additiva.
Vito Arcangelo Carulli

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ORE 9.15 Does the appearance of packaging influences consumers' expectations of dietary food in e-commerce?

Raffaele Campo, Felipe Reinoso-Carvalho, Modesto De Luca, Oronzo Trio

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Chiara Ancillai, Sara Bartoloni

ORE 9.45 The effect of number of followers and argument quality on online users' automatic responses to Instagram advertising post.
Rumen Pozharliev, Matteo De Angelis, Dario Rossi, Piotr Gazcek

ORE 10.00 Investigating Gen Z' boycotting behavior online and offline.
Giandomenico di Domenico, Annamaria Tuan, Marco Visentin

ORE 10.15 Measuring Brand-influencer visual congruence on Instagram using deep learning and automated image recognition.
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ORE 10.30 When digitalization enhances real-life relationships: early evidence from Italian small retailers during crisis time.
Chiara Civera, Cecilia Casalegno, Elena Candelo

ORE 10.45 Proximity marketing and neuromarketing: can joint use produce benefits for businesses?
Debora Jani, Laura Bravi, Federica Murmura, Fabio Musso

ORE 11.00 #collabhouse #stardust #influencer #professionalizeyourself: an exploratory study on the rise of new intermediaries in Social Media.
Augusto Bargoni, Chiara Giachino, Bernardo Bertoldi

ORE 11.15 Brand e trasgressioni: le principali conseguenze nella comunicazione sui Social Media.
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ORE 9.00 Technology advancement in healthcare provision: a review of the literature.
Johana Hajdini, Lea Iaia, Michael Christofi

ORE 9.15 Market competition through firm and user generated content across multiple Social Media platforms and different message content.
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ORE 9.30 Social commerce and luxury market: an exploratory study.
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ORE 9.45 The evolving role of Social Media in the fashion industry: customer insights and market trends.
Anna Claudia Pellicelli, Carola Romana Garrone

ORE 10.00 Il posizionamento digitale nel mercato del tartufo: una fuzzy set/Qualitative Comparative Analysis dei retailer italiani.
Fabio Forlani, Antonio Picciotti, Mauro Dini

ORE 10.15 A comparative analysis of customer´s reviews: online versus internal data.
David D'Acunto, Graziano Abrate, Rebecca Pera, Serena Volo

ORE 10.30 Which needs should be addressed to create a memorable shopping experience and improve the phygital customer journey? A study across sportswear retailers.
Angelo Bonfanti, Virgina Vannucci, Vania Vigolo, Federico Brunetti

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Francesca Serravalle, Milena Viassone, Giacomo Del Chiappa

ORE 11.00 Twins of Evil? Consumers reactions to 3D versus 2D product pictures.
Gabriele Pizzi, Daniele Scarpi, Virginia Vannucci, Anne Roggeveen

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Stefano Prestini, Gaia Giambastiani, Anastasia Nanni

ORE 10.15 The effectiveness of the Luxury sustainable communication on green consumption value: the role of perceived durability and consumers' materialism.
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ORE 10.30 Gen Z and sustainable tourism stay: the role of collective efficacy.
Michelle Bonera, Anna Codini, Giulia Miniero

ORE 10.45 Sustainable trend: how well-being works in shaping fashion consumption practices.
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ORE 11.00 Is it for you? Circular packaging and sustainable authenticity.
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ORE 11.15 "To be or to appear to be sustainable": selectivity, presentation enhancement and measurement distortion in sustainability reporting.
Elanor Colleoni, Grazia Murtarelli, Stefania Romenti, Francesca Campolo

ORE 11.30 Exploring food 'localness': a definition from local food activists.
Alessandro Graciotti, Giacomo Gistri

ORE 11.45 Circular economy and NRBV: a multiple case study of the textile and clothing industry.
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Antonio Iazzi, Monica Fait Lorenzo Ligorio

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ORE 9.00 Digital technology as a frontline actor: roles, interactions, and impact on service experience.
Janet R. McColl-Kennedy, Chiara Orsingher, Teegan Green, Amy Ostrom, Marlien Varnfield, Mohamed Zaki, David Hansen, Jane Li, Kaley Butten, Jason Titman

ORE 9.15 Investigating the diffusion of the Service-Dominant Logic (SDL) perspective in the sports related research: a review of the literature.
Fabio Cerroni

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ORE 9.45 The role of digital platforms on Italian wine firms' internationalization in China: a service ecosystems' approach.
Lala Hu, Marta Galli, Roberta Sebastiani

ORE 10.00 Presenza sui Social Media di 344 banche italiane.
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ORE 10.15 Gli attivatori della sostenibilità nel private label retail ecosystem e le loro relazioni.
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PROF. TOMMASO PUCCI - PROF. MARCO REMONDINO
PROF. LORENZO ZANNI - AULA B1

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Michela Piccarozzi, Barbara Aquilani, Irene Fulco

ORE 9.15 The effects of Brand personality appeal on consumers' willingness to buy deep-tech startup products: a preliminary study.
Andrea Sestino, Gianluigi Guido, Ejona Shehu

ORE 9.30 Marketing e Start-up (High-Tech): una rassegna della letteratura e possibile agenda di ricerca.
Tommaso Pucci, Elena Casprini, Lorenzo Zanni

ORE 9.45 "Start-up Marketing", ecosistemi innovativi e "market infrastructure": una prospettiva practice-based.
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ORE 10.00 La cultura di marketing nelle principali istituzioni che supportano le Start-up innovative tech-based.
Gianni Cozzi, Marco Remondino

ORE 10.15 Launching a small business venture as an act of eudaimonia.
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ORE 10.30 Deep tech Start-ups and market opportunities framing: an exploratory research.
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Niccolò Fiorini, Elena Casprini

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ORE 11.15 La relazione startup– incubatore: la centralità del networking.
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ORE 11.30 Start-up innovative a significativo impatto sociale e marketing. Il caso Movendo Technology.
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ORE 10.45 Disseminazione a supporto della comunicazione d'impresa: il Manni Group Design Award.
Annarita Colamatteo, Maria Anna Pagnanelli, Marcello Sansone, Roberto Bruni, Daniel Elber

ORE 11.00 La digital trasformation di Trenitalia: da operatore della mobilità a "ispiratore di viaggio".
Simona D'Amico, Francesco Sorvillo

ORE 11.15 Potenzialità ed aspetti applicativi del funnel marketing (digitale). Spunti dal caso MSW / OZ Racing.
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ORE 11.30 L'ingaggio di nuovi clienti B2B attraverso il digitale: i virtual tour di Loccioni.
Laura Colm, Andrea Ordanini

ORE 11.45 Il caso Felce Azzurra. L'estensione di un Brand storico del settore cosmetico.
Antonella Garofano, Sabrina Celestino, Rossella Sagliocco, Raffaele Cecere

ORE 12.00 Caso MNMUR: formulare e comunicare una proposta di valore circolare.
Beatrice Re, Davide Calandra, Paolo Biancone

Segreteria Organizzativa:

Dipartimento Comunicazione e
Ricerca Sociale - CoRiS
Sapienza, Università di Roma
Via Salaria, 113 - 00198 Roma
Tel. +39 0649918325 - E-mail: info@simktg.it

Sede Legale:
Dipartimento di Economia
Università degli Studi di Parma
Via J.F. Kennedy, 6 - 43125 Parma
C.F. 93053280504 - P.I. 01718720509

Does the appearance of packaging influences consumers' expectations of dietary food in e-commerce?

Raffaele Campo[1], Felipe Reinoso-Carvalho[2], Modesto De Luca[3], Oronzo Trio[4]

Abstract
In this study, we assessed whether different packaging appearances would modulate the expectations of dietary food (in this case, transparent-glass jar vs opaque bag of cookies) when presented in a simulated e-commerce environment. A between-participants study was conducted where three different packages were digitally compared by the participants (labeled bag with dietary information on cookies, labeled jar with dietary information on cookies, unlabeled jar with no information on cookies).
The obtained evidence generally suggests that a properly labeled dietary cookie jar can be a more effective experience while promoting the health benefits of this kind of product, while at the same time triggering higher expectations concerning aspects related the pleasantness for the cookies. In particular, the participants tended to crave more for the cookies when presented in the jar, as compared to when presented in the bag, and regardless if the jar was labeled or not. The participants also expected the cookies to be sweeter when presented in the jar, as compared to when presented in the bag (again, regardless if the jar was labeled or not). Moreover, the cookie jar seems to be even more efficient for promoting dietary cookies among non-consumers of these type of cookies. We discuss these results mainly in the light of crossmodal correspondences, suggesting the bouba-kiki effect, and semantic congruency, as suitable explanations for the observed effects.

Keywords: crossmodal correspondences; dietary cookies; expectations; packaging; well- being.

1. Introduction

It has been extensively shown that the decisions of consumers are significantly affected by the visual appearance of a product, including its packaging (Bloch

[1] University of Bari, raffaele.campo@uniba.it.
[2] Universidad de Los Andes School of Management (Bogotà, Colombia), f.sound@gmail.com. Raffaele Campo and Felipe Reinoso-Carvalho share first authorship.
[3] Independent researcher, mod.deluca@gmail.com.
[4] University of Salento, oronzo.trio@unisalento.it.

et al., 2003; Creusen and Schoormans, 2005; Crilly et al., 2004; Folkes and Matta, 2004; Imram, 1999; Schifferstein, 2006; Schifferstein & Cleiren, 2005; Schifferstein & Desmet, 2007; Vieira, 2010; Zellner et al., 2004). Nowadays these reflections seem to grow in importance, as we tend to consume more and more via e-commerce platforms, and where the virtual version of a product's package is, most of the time, the single contact that the consumer has with such product during the purchasing decision process. A food/drink properly presented via its packaging in e-commerce may be key, for example, to nudge consumers towards new products.

Nowadays, consumers also seem to demand healthier and more sustainable life-styles, where food choices can be determinant during such kind of pursue. In this sense, dietary food products may become more important choices during such decision-making processes. Here, packaging can also be critical for, say, communicating health-related information (Hagmann and Siegrist, 2020, Miklavec et al., 2016, Vith et al., 2010).

With the above being exposed, the general purpose of this study was to better understand the effects of the visual appearance of packaging on the expectations of a dietary food product in e-commerce.

From a well-being perspective, this study was thought as an opportunity to show the positive role that food marketing can play while promoting a more sustainable life-style via healthier food choices (Englund et al.; 2020; Pettigrew, 2016). Like this, we wanted to principally explore how, e.g., information relative to a product's healthiness and/or lightness could be combined with different visual appearances of packaging, in order to look for more effective promotion of dietary food products.

1.1 Theoretical framework

Concerning dietary food, for this experimental exercise, it was decided to work with dietary cookies. Cookies can be acquired in wide variety of choices when it comes to flavor, the production process (i.e., from fully crafted, till full-industrialized ones), as well as concerning nutritional/dietary factors (e.g., from very high- caloric till very specific choices in terms of dietary conditions).

When it comes to the visual appearance in packaging, there are the verbal typologies. Several studies have verified how particular aspects of sensory perception related to healthiness can be influenced by messages verbally present on food/beverage packaging (e.g., Carrillo et al., 2012; Lwin et al., 2014; Miraballes et al., 2014; Pinto et al., 2017; Steinhauser et al., 2019; Steinhauser and Hamm, 2018; Tuorilla and Cardello, 2002; Verbeke et al., 2009).

When it comes to the visual appearance in packaging, there are also the non-verbal typologies, where crossmodal correspondences (that is, the associations

that people make between features across the senses; Spence, 2011) seem to play an important role on how the combinations of different visual elements of packaging can significantly affect our expectations, and consequent tasting experience of foods and drinks.

Colors (Marshall et al., 2006; Piqueras-Fiszman and Spence, 2011; Rebollar et al., 2012, Seo and Scammon, 2017; Spence and Velasco, 2018), shapes (Ares and Deliza, 2010; Becker et al., 2011; Simmonds et al., 2019; Spence and Wan, 2015; Velasco et al. 2016), and graphics/typography (Westerman et al.; 2013), are some of the many visual aspects of packaging that have been shown to significantly affect the expectations of food/drink. Based on crossmodal correspondences, different studies have revealed the role of a food/drink packaging and/or general container (i.e., cups), not only in terms of expectations, but also in actual taste/flavor perception (e.g., Letona et al., 2014; Mead and Richerson, 2018; Raudenbush et al., 2002; Spence and Carvalho, 2019; Tijssen et al., 2017; Tu et al., 2015; van Rompay et a., 2014; Velasco & Spence, 2019).

Considering the aforementioned effects that a packaging can prompt on a food/drink, and inspired by Adam and Ali (2014), we thought of the fact that industrial dietary cookies are not usually offered in transparent-glass jars (as in cookie jars). Nevertheless, such type of jars tends to be present in the imaginary of consumers as something congruent with a pleasant cookies experience (i.e., a cookie jar can resemble a traditional/crafted type of tasty cookies). Therefore, we found ourselves with the curiosity of assessing this particular type of package with dietary cookies, while comparing it with a more common/industrial way of packaging (in this case, an opaque cookie bag). Besides this 'semantic' congruent added-value that a jar could bring to the experience of dietary cookies, we also thought, for example, on the fact that a transparent jar allows the product to be fully exposed during the decision-making process. The latter may be even more relevant in e-commerce, where none of the senses, besides vision, tend to be activated (at least not yet). Moreover, a jar usually has rounder shapes than most cookie bags. Those rounder shapes, combined with visible round cookies, may trigger the expectations of consumers towards general roundness. Hence, we thought of the bouba-kiki effect, which suggests that round shapes are more naturally associated with sweeter, or softer, flavors, when compared to more angular shapes (see Reinoso Carvalho et al., 2017b, for an example on the bouba-kiki effect). In other words, when compared to a bag, a cookie jar may prompt higher expectations towards a sweeter and/or softer cookie experience.

Besides assessing the effects of different appereances of packaging on the expectations for dietary cookies, in this study, it was also important to better understand the relationship between packaging, and perceived healthiness, via

labeling (Lopez and Kuster-Boluda, 2016; Pinto et al., 2017). In this sense, Vila-Lopez and Kuster-Boluda (2016), for example, showed that adolescents who care about food-related issues (e.g. nutritional facts/weight control) pay more attention to explicit informative content printed clearly on the package, when compared to the importance that they tend to give to the visual decorative elements on packaging. Here, teenage women showed a more evident tendency towards such behavior.

1.2 Hypothesis

This study was designed to assess whether the appearance of packaging (and specifically the transparency and shape of the container, combined) would somehow modulate the expectations for dietary cookies when presented in digital format (in this case, a transparent-glass jar vs an opaque bag, in a simulated 2D e-commerce environment). We hypothesized, first, that a cookie jar would enhance the expectations towards a more traditional/crafted type of experience, where cookies might be expected to somewhat taste sweeter, softer, and even better, but not necessarily healthier (the latter, when compared to a cookie bag type of presentation), as compared to when presented in an opaque bag. However, when combining such jar appearance with proper labeling (which would include, for example, specific information related to the particular dietary characteristics of such cookies), it was hypothesized that the expectations concerning these cookies would tend to balance somewhere in-between a tasty, but at the same time healthy, experience. Here, it was also initially assumed that such modulation in expectations would be measurable in terms of sensations related to healthiness (e.g., lighter, healthier, caloric content), differences in hedonic ratings (e.g., greediness, as in 'these cookies look so good they make me hungry'), and/or differences in flavor ratings (e.g., sweetness, crumbliness).

2. Methodology

Pre-test

The pre-test was conducted for two main reasons. First, we wanted to have an initial glimpse on how a pilot group of consumers would perceive the dietary cookies, when served in a transparent-glass jar (as in a typical cookie jar), as compared to when served it its commercial/original packaging (e.g., a bag). Secondly, we also wanted to look for the most relevant information to be included in the label to be produced for the main test. Here, we assumed that

the usual e-commerce platform does not always allow the consumer to properly read all the information that may be present in a dietary product's label. Hence, it was decided to intuitively explore which type of wording would be more relevant for the consumer while evaluating dietary cookies, in order to optimize the amount of information to be used in the experimental customized label.

2.1. Materials and Methods

2.1.1. Participants

31 European participants joined the pre-test (12 females and 19 males; average of age 29.65 years, SD = 10.00). They were mostly Italian residents. All participants reported being consumers of cookies.

2.1.2 Tasting stimuli

'Privolat' puffed-rice dietary cookies were used as pre-test tasting stimuli. Privolat are commercialized as suitable for specific dietary conditions, and usually promoted as a healthier alternative to traditional cookies (i.e., they are palm-oil, milk and eggs free.).

2.1.3. Experimental Design and procedure

A within-participants design was conducted, where the participants were randomly subdivided in two groups. The first group (namely 'T'; n = 15) had the Privolat cookies served in an unlabeled glass jar, while the second group (namely 'S'; n = 16), had the same cookies served in its original labeled-bag/packaging (see Note 1).

Prior to tasting the cookies, the participants were told to visually appreciate the corresponding cookies and packaging. After tasting, along with basic demographics, the participants answered a quick self-report questionnaire concerning the flavor attributes that were thought to be relevant in a dietary cookie's tasting experience (crumbliness, healthiness, lightness, caloric content, greediness – as in 'these cookies look so good they make me hungry'). Such evaluation was based on a 9-point rating scales (being 1 'not at all', and 9 'very much').

2.2. Summary of the results of the pre-test

While inspecting the obtained the average means, and comparing them across both groups of participants, using ANOVA, the ratings related to lightness and caloric content of the cookies were the only ones considered as statistically relevant to take into consideration. For example, considering a range between 90-95% confidence, on average, the participants eating the cookies from the jar

rated them as more caloric when compared to those eating the same cookies from the original packaging (MS-MT = -1.47; p = 0.05). Moreover, the participants tasting the cookies from the original packaging rated them as somewhat lighter when compared to those eating the same cookies from the glass jar (MS-MT = 1.35; p = 0.1).

In summary, the cookies were thought as potentially lighter, but not necessarily healthier, when being offered in their original labeled packaging, as compared to when offered in the unlabeled jar. Also, the participants rated the same cookies as potentially more caloric when presented in the unlabeled jar, as compared to the ratings under the influence of the original packaging.

With these preliminary insights, first, it was validated that differences in packaging appereance (bag vs jar) may prompt different expectations for dietary cookies during the purchase decision process. Furthermore, the pre-test was useful in order to prioritize the wording for the customized experimental label to be used in the main test. In particular, the results of the pre-test suggested 'lightness' and 'calories' related wording as more effective message carriers for dietary cookies labeling, rather than 'healthy' wording, or perhaps wording more related to flavor/hedonic sensations elicited by the cookies experience (i.e., crumbliness, greediness).

3.Main Test

In the main test it was assessed if different types of customized packaging would prompt significantly different expectations on consumers during their purchase decision process in a simulated e-commerce environment. Based on the results obtained in the pre-test, different versions of customized packaging were produced, thus comparing two different types of containers (transparent jar vs opaque jar), and the presence vs absence of labeling (the latter, containing customized nutritional information of the dietary cookies).

3.1 Materials & Methods

3.1.1. Participants

In total, 284 participants joined the experiment on-line (n = 284; 63% female, Mean of age 29.68 years SD = 10.32). Most of this sample was balanced across European and American participants, with a very few exceptions from Oceania and Asia. Most of the participants reported eating cookies (88%), loving cookies (85%), and usually paying attention to food/drink product's labeling while shopping (78%). Only 41% of the participants reported actually consuming light/dietary type of cookies. In order to determine the sample size, a power analysis was performed based on Friedman's simplified determinations of statistical power (see Friedman, 1982, Table 1). Considering 95% confidence ($\alpha = .05$), effect size of 0.30, and a power effect of at least 0.80, the suggested

sample size would be of around 82 participants per condition.

3.1.2. Stimuli

One customized label was produced for this experiment. Based on the results of the pre-test, the label included a product's title (namely 'Light cookies'), along with basic characteristics of the product's formula ('low in calories'; 'palm-oil, milk, and eggs free'). This label was present in the two different versions of packaging (opaque bag – A, and transparent jar – B). A third version of packaging consisted in the jar without labeling - C). In brief, those three versions of packing were the only ones tested since we thought on those being the only ones having some kind of commercial output. Figure 1 shows the experimental versions of the packaging.

Figure 1. The three experimental packages (opaque bag – A, labeled jar – B, and unlabeled jar– C).

A B C

3.1.3. Design and procedure

A survey-based on-line between-participants experiment was conducted. This survey was launched in English, globally, via different networks. Here, each participant was asked to visually appreciate one of the three available versions of the cookies packaging, while self-reporting the expectations elicited by such packaging (healthiness, quality, greediness, price, lightness, calories, crumbliness, sweetness, tastiness, cookies/packaging liking). The survey lasted for no more than 5 minutes.

In the survey, the packages were presented at fairly similar size, and

large enough in order for the participants be able to read all the available information present in the label (the latter only when applicable, as one version of the packaging was unlabeled). Since the jar allowed the participants to actually see the cookies, it was decided to include mini replicas of the cookies as part of the label's bag.
The answers concerning the expectations elicited by the packaging were based on 5-point rating scales, with 1 meaning 'Not at all', and 5 'Very much'. After answering these questions, the participants were also asked to provide some demographics (age, gender, country), along with basic questions related to their general cookies-consumption habits. Note that the three choices of packaging were fully randomized across participants, as well as the order of the presentations of the survey's questions.

3.1.4. Data Analysis

A multivariate analysis of variance (MANOVA) was conducted via SPSS 26, with type of packaging as fixed-factors and the rating-scales as the dependent variables (see Table 1, section 1, for an overview on these dependent variables). Evidence of significant differences were reported based on 95% confidence. Gender was included as covariate, and Bonferroni correction was applied during post-hoc analyses.

3.2. Results

3.2.1. General multivariate and univariate analyses

31% of the participants rated their expectations of the cookies based on the opaque bag (nA = 88), 33% based on the labeled jar (nB = 94), and 36% based on the unlabeled jar (nC = 102). In general, the test showed a main effect of package ($p \leq 0.001$), with no interaction effect with gender ($p \leq 0.351$) at between-participants level (see Table 1 more details of these results). The univariate tests showed that the participants rated their expectations concerning the cookies as different in terms of healthiness ($p \leq 0.001$), greediness ($p = 0.001$), price ($p = 0.003$), lightness ($p \leq 0.001$), low calories ($p \leq 0.001$), high calories ($p \leq 0.001$), sweetness ($p \leq 0.001$), tastiness ($p = 0.006$), cookies liking ($p = 0.006$), and package liking ($p \leq 0.001$). No differences were found on their expectations concerning the quality ($p = 0.441$), and crumbliness ($p = 0.731$) of the cookies. Table 2 shows more details of this univariate analysis.

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared	Observed Power[d]
Intercept	**Pillai's Trace**	**0.819**	**101.256[b]**	**12.000**	**269.000**	**0.000**	**0.819**	**1.000**
Gender	Pillai's Trace	0.047	1.111[b]	12.000	269.000	0.351	0.047	0.638
Packaging	**Pillai's Trace**	**0.546**	**8.459**	**24.000**	**540.000**	**0.000**	**0.273**	**1.000**

Table 1. Summary of the results of the multivariate tests. Values in bold indicate a significant difference at 95% confidence.
a.Design: Intercept + GENDER + PACKAGE
b.Exact statistic
d. Computed using alpha = 0.05

Dependent Variable		Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Observed Power[a]
Healthiness	**Contrast**	**70.472**	**2**	**35.236**	**23.900**	**0.000**	**0.146**	**1.000**
	Error	**412.803**	**280**	**1.474**				
Quality	Contrast	1.610	2	0.805	0.821	0.441	0.006	0.190
	Error	274.605	280	0.981				
Greediness	**Contrast**	**18.861**	**2**	**9.431**	**7.020**	**0.001**	**0.048**	**0.926**
	Error	**376.143**	**280**	**1.343**				
Price	**Contrast**	**14.322**	**2**	**7.161**	**5.970**	**0.003**	**0.041**	**0.878**

	Error	**335.874**	**280**	**1.200**				
Lightness	**Contrast**	**115.576**	**2**	**57.788**	**48.589**	**0.000**	**0.258**	**1.000**
	Error	**333.012**	**280**	**1.189**				
Low calories	**Contrast**	**186.104**	**2**	**93.052**	**64.401**	**0.000**	**0.315**	**1.000**
	Error	**404.569**	**280**	**1.445**				
High calories	**Contrast**	**144.888**	**2**	**72.444**	**51.928**	**0.000**	**0.271**	**1.000**
	Error	**390.622**	**280**	**1.395**				
Crumbliness	Contrast	0.680	2	0.340	0.313	0.731	0.002	0.100
	Error	304.022	280	1.086				
Sweetness	**Contrast**	**31.570**	**2**	**15.785**	**15.934**	**0.000**	**0.102**	**1.000**
	Error	**277.389**	**280**	**0.991**				
Tastiness	**Contrast**	**12.494**	**2**	**6.247**	**5.231**	**0.006**	**0.036**	**0.829**
	Error	**334.397**	**280**	**1.194**				
Cookies liking	**Contrast**	**11.248**	**2**	**5.624**	**5.245**	**0.006**	**0.036**	**0.830**
	Error	**300.216**	**280**	**1.072**				
Packaging liking	**Contrast**	**25.493**	**2**	**12.746**	**8.282**	**0.000**	**0.056**	**0.961**
	Error	**430.932**	**280**	**1.539**				

Table 2. Summary of the results of the univariate tests, including all the dependent variables that were measured. Values in bold indicate a significant difference at 95% confidence.

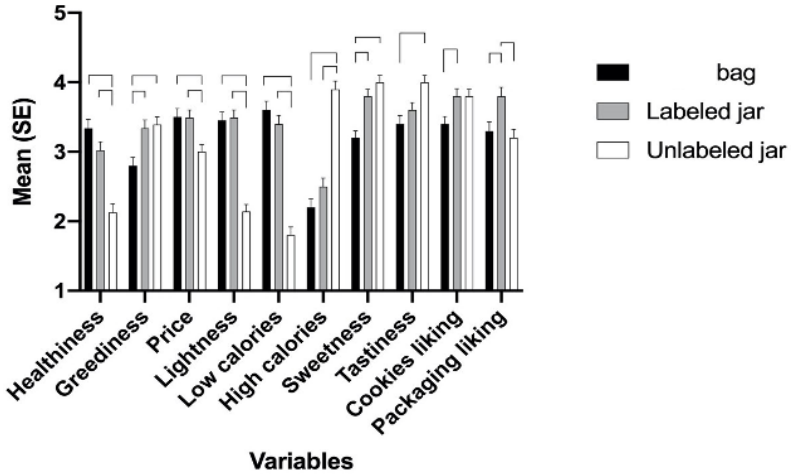

Figure 1. Summary of the post-hoc tests that accused significance, at 95% confidence during the univariate tests. Y axis contains the Means and corresponding SE (standards error). X

axis contains the dependent variables. Opaque bag ratings are presented in black bars, labeled jar ratings in grey bars, and unlabeled jar ratings in white bars. Whisks indicate a significant difference at 95% confidence for each pairwise comparison.

In summary, most ratings seemed to be affected by the label, rather than the differences in the appereance of the packing. However, this was not the case for the ratings related to greediness and sweetness. In particular, the participants seem to have craved more for the cookies when presented in the jar, regardless if the jar was labeled or not (i.e., greediness). Interestingly, the participants also seem to have expected the cookies to be sweeter when presented in the jar and, again, regardless if the jar was labeled or not.

3.2.2. The effect of differences in light/dietary-cookies consumption habits

Due to the fact that only 41% of the participants reported actually consuming light/dietary type of cookies, it was decided to compare the expectations of consumers vs non-consumers of these cookies by splitting the data-set, and reprocessing the data.

Concerning consumers of light/dietary-cookies, the ratings of greediness [$F(2,111) = 1.58$, $p= 0.211$, $\eta2 = 0.028$], tastiness [$F(2,111) = 2.10$, $p = 0.127$, $\eta2 = 0.037$], and cookie liking [$F(2,111) = 0.860$, $p = 0.426$, $\eta2 = 0.015$], did not replicate when compared to the main analysis.

In the particular case of the post-hoc analyses, consumers of light/dietary-cookies only expected the cookies in the unlabeled jar to be significantly sweeter than those in the bag ($p = 0.013$), as compared to the main analysis where the participants expected the cookies in the bag to be less sweet than those in both jars ($p \leq 0.001$ for both). Also, these participants only liked the labeled jar significantly more than the unlabeled jar ($p = 0.009$), as compared to the main analysis where the participants liked the labeled jar significantly more than the other two (opaque bag $p = 0.021$; unlabeled jar $p \leq 0.001$). The latter would somehow imply that consumers of light/dietary-cookies tend to be more focused on the label, and less careful of the visual appearance of the packaging, when compared to habitual non-consumers of these types of cookies.

Concerning non-consumers of light/dietary-cookies, only the ratings of price [$F(2,165) = 2.60$, $p = 0.077$, $\eta2 = 0.031$] did not replicate when compared to the main analysis.

Summarizing, it seems that the expectations of consumers of light/dietary-cookies tended to be less generally affected by the

differences in visual appearance of packaging when compared to the expectations of non-consumers of such type of cookies. Moreover, whereas consumers of light/dietary-cookies seemed to be generally more attentive to the information present in the label, non-consumers of light/dietary-cookies did not seem to be willing to pay more for such types of cookies when compared to, say, generic ones.

4. Discussion

The general purpose of this study was to better understand the effects of the visual appearance of packaging on the expectations of dietary cookies in virtual environments (e.g., e-commerce). In particular, we wanted to explore if the appearance of packaging would somehow modulate the expectations of dietary cookies (in this case transparent-glass jar vs opaque bag).

A pre-test was conducted in order to pilot the proposed packaging appereances, as well as to optimize the customized label to be included as part of the main test's packaging experience. In the main test, participants compared three different versions of digital packaging (a labeled cookie bag, a labeled cookie jar, and an unlabeled cookie jar). General results suggest that the type of packaging can indeed have a significant effect on specific aspects of the expectations of consumers for dietary food, such as cookies. In particular, the participants seem to have craved more for cookies when presented in the jar, as compared to when presented in the bag, and regardless whether the jar was labeled or not (as in greediness). The participants also seem to have expected the cookies to be sweeter when presented in the jar, as compared to when presented in a bag and, again, regardless whether the jar was labeled or not.

Clearly, the cookie jar was transparent, whereas the cookie bag was not. Like this, we could hypothesize that the participant's visual inspection of the product, via the jar, positively affected their evaluation of the product (Simmonds & Spence, 2017; Simmonds et al., 2018). Moreover, aforementioned theory of crossmodal correspondences argues that round shapes tend to be more naturally associated with sweetness, when compared to angular shapes (e.g., the bouba-kiki effect; Reinoso Carvalho et al., 2017b). The round shapes of the cookie jar, combined with the visible round cookies, seem to have provided a 'rounder' experience, when compared to the bag that does not necessarily brings the consumer towards roundness per se.

The results also show that the cookie jar was mostly preferred over the bag (cf. Adam and Ali, 2014). Here, the unlabeled cookie jar seems to

particularly trigger expectations towards a more caloric and tastier type of cookies experience, where the jar may resemble less industrial, and/or more traditional/crafted cookies. In fact, when comparing the results of the labeled vs unlabeled jars, it is possible to see that the information brought by the label helps to mitigate the aforementioned 'caloric' effects. Hence, the usage of the jar seems to also align with the theory of crossmodal correspondences, which recommends congruency across the different sensory inputs for more effectiveness (as in semantic congruency; Reinoso Carvalho et al., 2017a).

In summary, these results point towards labeled and transparent jars as more effective packaging for dietary cookies in virtual environments, at least when compared to bags. A properly labeled cookie jar can effectively promote the health benefits of this kind of product without necessarily framing these cookies as potentially less appealing (i.e., lacking of sweetness/tastiness).

Note that the results discussed above are based on a population of consumers of general cookies, but not necessarily considers the particular consumers of light/dietary cookies. When considering the differences in light/dietary-cookies consumption habits, the appreciation for the differences in containers seem to further differ (see section 3.2.2). For instance, the expectations of habitual consumers of light/dietary-cookies tend to be less generally affected by the differences in type of packaging (and more affected by the information present in the label) when compared to the expectations of non-consumers of such type of cookies. Hence, cookie jars may be even more efficient for promoting dietary cookies to new consumers.

In this study there was also a cautious thought on how to best customize this type of package labeling (see pre-test). When framing consumers of dietary cookies as consumers who pay careful attention to the healthiness of what they eat, these results do not point towards focusing on communicating healthiness in the packaging *per se*. The results of the pre-test actually suggest that food companies should emphasize on the lightness of the product for more effectiveness.

Concerning the existing limitations of this study, more combinations of packaging may be needed in order to further conclude the effects here being discussed (e.g., transparency in bag, angularity/roundness in both bag and jar). Future similar assessments could also try to better balance the visibility of the cookies in opaque packaging (e.g., by printing the bag with cookies, or by using transparent cookie bags).

Briefly, this study invites towards continuing exploring the further customization of packaging for more dietary products, especially

considering potential new consumers of these type of products in virtual environments.

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