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Innovative technologies and educational approaches in Out-Of-Home Campaigns: the influence on consumer behavior across generations.

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INTRODUCTION

Nowadays, marketing is a tool that consumers come into contact within their daily lives; companies in any industry use it, even for different purposes.

This research aims to analyze marketing in the food sector, which is very sensitive in some aspects, but extremely versatile in others.

The large consumption of unhealthy foods presents a challenge in promoting healthy lifestyles, and this study explores how companies in the sector can bring consumers closer through interactive and educational marketing strategies.

Specifically, the study will cover Out-Of-Home marketing, hence all promotional activities carried out in outdoor urban environments, analyzing it from different perspectives. OOH marketing can be considered an evergreen, yet it needs continuous innovation to maintain its high standards.

The objective of this study is to evaluate how more interactive marketing campaigns, with gamification and educational aspects, affect consumers' food awareness, making a distinction at the demographic level.

To accomplish this analysis, the research adopts a quantitative methodological approach. Through the administration of a questionnaire, the necessary data were collected to effectively understand the impact of different types of OOH campaigns on potential consumers of different generations.

CHAPTER 1

1.1 Contextualization of the phenomenon

Nowadays, marketing is no longer just a way to bring the consumer closer to one's brand, but can be a very powerful tool that disrupts the perception of things and leads to a change in behaviour on the part of those who come into contact with it.

Marketing can take many forms, which in recent years have become increasingly digitalized; specifically, this research will deal with out-of-home (OOH) marketing, that refers to all the activities that involve the promotion of products or services placed in the urban center, outside the usual environments such as homes or offices. This kind of advertisement is an evergreen in marketing and must necessarily innovate over time to remain so. Traditional OOH includes, for example, billboards, posters, illuminated signs, advertising on public transport such as buses and trains, as well as sponsored events and temporary installations. The strong visual impact of an OOH advertisement is one of its strengths and at the same time one of the main reasons why it is used. The purpose of outdoor marketing is to reach and engage the public when they are away from home; using public transport to convey the intended message increases its visibility and general awareness of the brand or product.

There are different forms of OOH ads, also subdivided according to their location in physical space: the most famous ones are billboards, hence huge installations displayed on high elevated boards placed in high foot traffic areas or roadsides; point-of-sale advertisements are placed, for example, near the check-out point in shops and have the purpose of attracting consumers' attention while purchasing; transit advertisements, also widely used, are all those placed on means of transport and for this reason have very high visibility; moreover, there are street supplies, i.e. ads placed on sidewalks, newsstands, benches, bus shelters, kiosks and many other places similar to these; finally, there are all the interactive installations, which use digital media such as display screens, but also Bluetooth or QR codes, and which therefore are named Digital Out Of Home Advertising (DOOH). (Clutch.co, 2023)

1.2 Technology as a Market Trend

Especially in recent years, with constant innovation in all sectors, the use of technology has become crucial, above all when it comes to creating a strong interaction with the public as in marketing. Technological innovations allow for a particular personalization of the consumer experience, which leads to more interaction on their part. (Mktg&Communication, n.d.)

Marketing feeds on interactions with the public and this is why it is supported by technologies that enable it to increase its impact. Therefore, technology is not just a passing trend, but an increasingly cumbersome aspect of everyone's reality, as it is radically revolutionizing how companies approach their customers.

The trend towards technology is driven by several factors that make it increasingly indispensable. The first of these is the fact that it is easily accessible to everyone, creating opportunities for companies to reach their target consumers anywhere and at any time. This aspect allows for the collection and analysis by companies of huge amounts of data on consumer behaviour or preferences, which is very useful for the implementation of targeted and effective marketing campaigns.

Another important aspect of technology is the fact that it brings with it the introduction of new platforms that, being often up-to-date, allow for an increasingly active involvement of consumers; the ultimate goal of the use of technology in marketing is the transformation of simple one-sided campaigns of the company towards consumers, into two-sided campaigns, in which the public is actively involved and participating.

Finally, the use of technology can make marketing more operationally efficient, as resources are optimized to maximize their return on investment. All this allows companies to know the needs of consumers and adapt to them, performing their work as effectively as possible.

1.2.1 Technology in OOH Marketing: Digital-Out-Of-Home Advertising

OOH Marketing campaigns, characterized over the years by their static nature, are lately taking advantage of technology to be closer to their audience. OOH Marketing in 2022 constituted 3% of the Italian advertising market, a percentage that is expected to grow, with an investment of over 28 billion dollars; the investment growth rate between 2021 and 2022 was about 11%. (Business Wire, 2022) In recent years, Digital Out Of Home (DOOH) is developing, which does not differ from traditional OOH in its positioning, as it is present in public and traffic-intensive places too, but has a substantial difference in its method of communication. In contrast to traditional outdoor communication, digital installations, for example, can play videos, creating a synergy between this kind of advertisement and mobile; actually, it has been observed that it is particularly functional to use a vertical screen for billboards, which makes it more immediate for the public to be able to relate it to the device. With regard to content, in DOOH there has always been a prevalence of mixed content, not only advertising but also entertainment or information. With big and bold displays, the channel grabs attention and sticks in your memory, indeed it has an impressive 82% ad recall from consumers passing by.

All this aspects make DOOH a substantially growing medium in the market; in fact, in 2022 it constitutes 22% of the total OOH market and is estimated to grow further. In 2023, it became the

fastest-growing advertising channel with a remarkable +24.2% growth. By 2027, advertisers expect DOOH to account for 45% of total OOH advertising spend. (Lyder, 2024)

DOOH is an ideal communication channel that invests in technology to deliver relevant messages to viewers and more accurate measurements to buyers, it can also be coordinated with other channels. (Rubin, 2023) When talking about digital installations, one's first thought probably comes to America's most illuminated square, Times Square, which has made it impossible for people walking through it not to look up. Taking a cue from what happens in New York, in a more circumscribed way, companies try to recreate the kind of engagement that brings public attention to the streets or squares of other cities with digital billboards.

One of the greatest advantages of digital billboards is their dynamism and thus the ease with which they attract the eye, as opposed to static billboards that risk becoming backgrounds with passive messages. In addition, they can be changed very quickly, if an initial analysis shows that the message is not having the desired effect, one can quickly change strategy. (Is Out-Of-Home Advertising Right for Restaurants, n.d.)

1.2.2 OOH marketing in the Food Sector

This overview also includes the marketing adopted by the food sector, the aim of which is to reach the widest possible audience, being a sector that encompasses the needs of everyone, and which for this very reason makes extensive use of OOH marketing. Obviously, the food sector has also taken advantage of the technological transition in marketing. The pioneer of this trend is undoubtedly McDonald's, which has demonstrated its ability to transform public and crowded spaces into a stage for its brand by using both traditional and digital outdoor marketing, clearly and directly inserting itself into the urban context and attracting the attention of passers-by.

Many companies in the food sector have been inspired by this trend and use this form of advertising to stay in the minds of consumers.

This type of advertising is also widely used by restaurants to capture foot traffic and late deciders very effectively. Beyond billboards, restaurants can leverage street furniture, transit ads, and digital displays to promote their offerings. Digital billboards offer flexibility and cost-effectiveness, allowing restaurants to change ads quickly, for example to highlight a change in the menu, and target specific customer segments effectively.

In relation to the restaurant industry, a study was carried out to measure the impact of OOH advertising on actual sales: through the use of mobile device location data (anonymous and aggregated), the amount of customers who are previously exposed to the ad and subsequently enter the restaurant or fast food chain in question is measured.

1.2.3 OOH Marketing for unhealthy food

Precisely because of the involvement that this kind of campaign creates, large companies in particular try to exploit it to raise awareness of important social or environmental issues. An advertising campaign can be considered effective above all from the moment the public reacts to it, and for this reason it can be the cue to empower the consumer to act for the general well-being.

Remaining in the food sector, McDonald's has also implemented ecological awareness campaigns, urging their consumers and the whole population to have environmentally friendly behaviour. (Perniciaro, 2022)

These kinds of Green Marketing campaigns, but also Brand Activism campaigns of other brands, have proven to be very impactful and consequently effective for public welfare. In the case of McDonald's, and all fast-food chains in general, one must also consider the fact that these kinds of companies do not contribute to public welfare because of their unhealthy foods.

This aspect becomes particularly relevant because of the high accessibility and visibility of such food products, also due to marketing campaigns that constantly promote them.

Studies show that the effects of marketing, even outdoor marketing to which everyone is equally subjected, are not to be underestimated from a public health perspective. The push that this kind of marketing produces contributes to unhealthy choices on the part of the population, taking advantage of the vulnerability associated with food choices, which are much more easily dictated by 'gluttony' than by the rationality of the individual. (Jindarattanaporn et al., 2024)

In particular, another research shows that children are the most affected by the correlation between OOH advertisements of unhealthy food and adverse health outcomes such as obesity and diet-related diseases. (Impact of Unhealthy Food Marketing on Children | Obesity Evidence Hub, 2022)

1.3 Relevance of the nutrition problem for public health

As the research carried out by Statista at the beginning of the year 2024 also shows, the nutrition problem is concrete and widespread in Italy; indeed, it is highlighted that out of over 2000 respondents, aged between 18 and 64, 60% "do not follow any rules regarding their nutrition". This is a very relevant data since it is the clear majority of the population surveyed and shows the wide margin for improvement that the population can implement from a dietary point of view, also as prevention from more serious health problems that may arise in the long term.

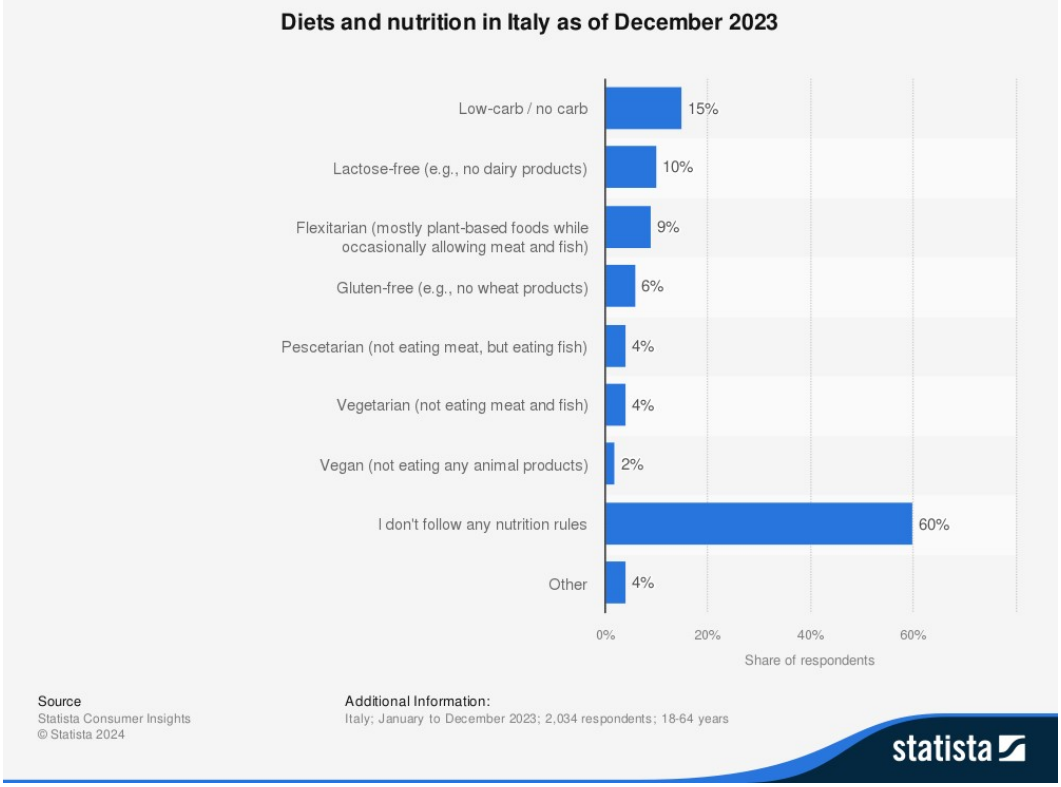


Table 1: "Diets and nutrition in Italy as of December 2023." (Source: https://www.statista.com/forecasts/1000735/dietsand-nutrition-in-italy)

Other studies had shown that health behaviors and social-environmental factors can determine up to 60% of an individual's health, and nutrition plays an impactful role in that. It's believed that 1.6 million hospitalizations could be avoided with medically tailored meals. A healthy diet rich in fruits, vegetables, whole grains and lean protein can help to reduce the risk of many chronic diseases. (Trisha Swift and Leigh Ann Solomon, 2023)

1.3.1 Attitudes towards nutrition as an emerging trend

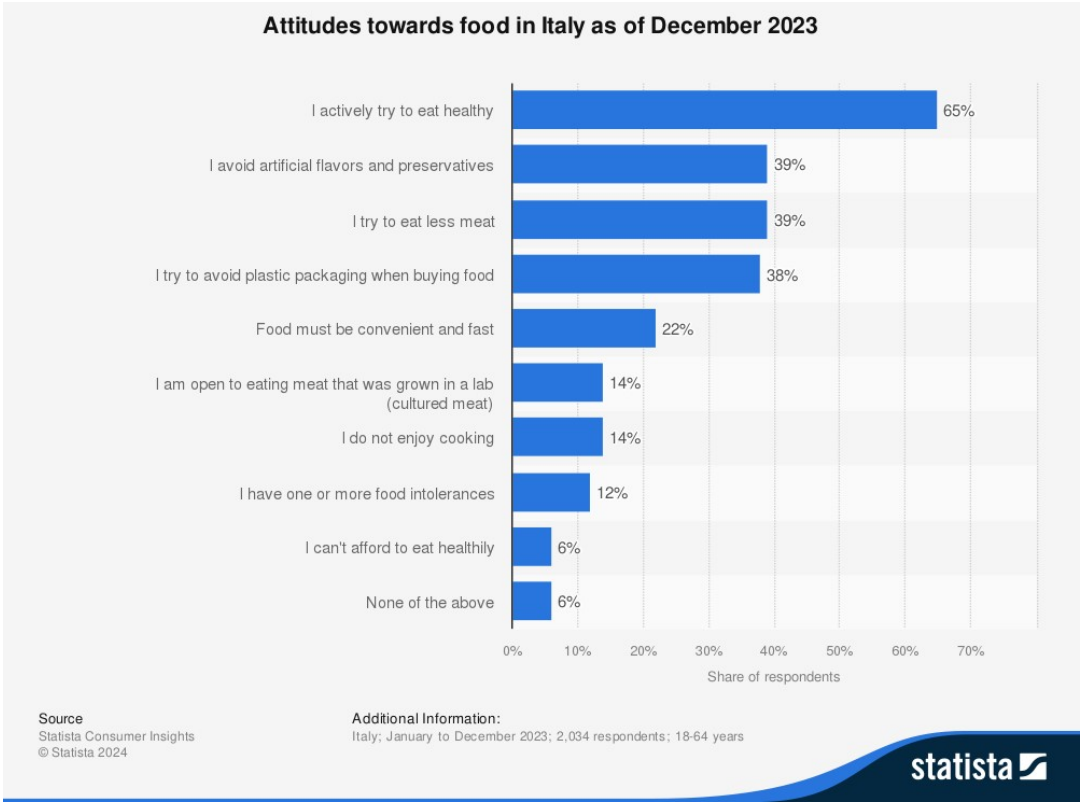
Even though, as shown above, studies demonstrate that many people do not follow precise rules for a healthy diet, in recent years there is an evidence of an increased interest and attention towards nutrition on the part of the Italian population. As the graph below shows, 65% of the people who took part in this study of over 2000 people 'try to eat healthily', this appears to be a trend that has emerged as a response to a series of factors that have contributed to a change in perspective of many people over time. First of all the growing awareness among the population, that want to start with a balanced diet in order to enjoy physical and mental wellbeing. This is not only an aspect of disease prevention, but people's desire to have a better lifestyle.

Table 2: "Attitudes towards food in Italy as of December 2023." (Source: https://www.statista.com/forecasts/1000721/attitudes-towards-food-in-italy)

One aspect that has been very relevant in the growth of this awareness has been the growing information on the subject; in fact, widespread access to information and the different channels in which it is disseminated have helped and are helping to raise awareness on these issues.
Information and education therefore play a crucial role and it is for this reason that the trends analyzed so far are relevant for the purposes of this research, which aims to give the population a further push towards proper nutrition through these means.

1.3.2 Relevance for marketers and consumers

The aspects analyzed so far provide an overview of the current market context and trends in relation to the food sector and the development of the means available to marketing, such as technology. Through this research, which aims to analyze the effects of food education through technology in OOH marketing, both marketers and consumers benefit from the opportunity to explore whether the integration of technology and education can positively influence food choices by promoting greater health awareness. For marketers, this research offers an opportunity to analyze DOOH advertising campaigns, to determine their effectiveness and to develop strategies better suited to their audience.



For consumers, on the other hand, this research is particularly relevant as it can contribute to the improvement of public health and well-being by helping to provide correct information on sensitive topics. The above contextualization is intended to attest to the relevance of the study that will be conducted in the following chapters.

CHAPTER 2

2.1 Challenges and opportunities of the Food Sector

The food sector is obviously one of the largest and most important worldwide, being one that not only influences the economy of nations, but also their culture, environment and especially public health. The study takes a close look at this aspect of the sector, accurately assessing the main challenges a company in this sector faces and the resulting opportunities.

One of the crucial aspects is the assurance of the quality and safety of the food that is put on the market; scrupulous attention to contamination or the storage of food is essential to avert any dangers concerning these aspects.

Consumer trends and preferences also vary very quickly in this sector, which must keep up with the evolution they have, adapting to trends such as veganism (which has become increasingly widespread in recent years), conscious consumption that makes people particularly attentive to the details of products and the widespread consumer search for organic food; these aspects are also strongly correlated with a challenge in terms of sustainability of the food that is produced, in fact, companies must be concerned about sustainable production in all aspects of it, managing their resources in the best possible way to ensure public welfare.

Given the interdependence between health and nutrition, regulation is necessary to enable comprehensive consumer protection; in fact, companies operating in this sector are among those most subject to stringent regulations to control all aspects from production to product advertising. The regulatory landscape needs special attention due to its complexity, as they have to assess a high number and variety of risks.

Food safety risks refer to those that directly impact human health, but also all those that concern 'food fraud incidents', referring to dishonesty or malicious purpose. (Kuckertz, A., Hinderer, S., & Röhm, P.,2019)

A distinction can be made between two types of major risks for consumers; the first concerns hygiene and is more specific to the safety of the food produced and sold, the second concerns the food standards that the company must adhere to, these encompass standards related to nutritional labelling (e.g. information on the amount of fat or carbohydrates), safety labelling (e.g. the correctness of expiry dates indicated on the product) and composition labelling (e.g. information on content that must comply with composition standards).

By controlling and regulating the listed aspects and many others, food regulation is crucial to ensure the public health of the country and to maintain and develop greater confidence in food. (Meyer et al., 2017)

After reviewing the various challenges that can be encountered in the sector, it is important to turn the attention to the many opportunities that emerge in parallel. In this panorama of opportunities, possible solutions to the problems of the sector listed above arise, but also new horizons that are necessary for the progress.

First and foremost, emerges technological innovation, already extensively discussed in the previous chapter, which radically transforms all phases of food production, distribution and consumption, improving efficiency and facilitating greater transparency and trust for both consumers and producers.

In order to respond to the critical health concerns of the population, the sector can address the growing demand for food that offers health benefits while providing more information for consumers to become more aware. (Kosior, 2018)

In addition, collaborating with other companies would make it easier to overcome challenges related to sustainability and food security; access to new resources, technologies and markets creates synergies that allow for more robust growth and market resilience.

Finally, very relevant for the purposes of this study is the industry's opportunity related to the increased engagement of consumers through digital and OOH technologies for marketing; the possibility of personalization through these strategies allows for the structuring of a purchasing experience that was previously not possible, thereby more easily increasing consumer engagement and subsequently consumer trust.

2.1.1 Integration of technology and gamification in OOH

By exploiting technology in OOH marketing, a company's scope of action can be greatly expanded, as it will have at its disposal a greater number of techniques and strategies to implement.

One of these could be the inclusion of gamification in advertising, i.e. the integration of playful elements into the actual advertisement that aims at a much more direct and interactive approach with the audience. The assimilation of this tool into OOH advertising 'camouflages' it in the eyes of the consumer, even though its intent is to implement a call to action.

This method transforms traditional advertising into engaging experiences, stimulating consumers through entertaining and memorable elements; the strategy leverages everyone's inherent competitive instinct and desire for achievement with the aim of establishing a deeper and consequently more lasting connection with the brand. By increasing the time that the consumer engages with the brand through gamification, the likelihood of conversion is also increased. (Vashisht, 2023)

Gamification in OOH marketing obviously utilizes digital elements that allow it to be an 'open-air video game' and within the reach of everyone; it therefore captures the attention of consumers by creating an emotional experience caused by their interaction.

There is a strong correlation between the emotional experience and the effectiveness of advertisements containing gamification, so much so that this is very relevant for the purposes of the study, since by analyzing the relationship between these factors it is possible to make the most of the technologies present in OOH advertising. (Huo & Jiang, 2022)

In addition, the brand's identity gets inextricably linked with good feelings and enjoyable moments thanks to memorable games and challenges. As gamers share their experiences with friends and family, your brand's reach grows, resulting in higher brand awareness.

The large share due to this marketing strategy, however, leads to considerations about the sharing and use of the data that is collected. While data is likely one of a company's most valuable assets, worries about data privacy have led a shift toward more transparent and consent-based data acquisition practices. From Apple's App Tracking Transparency improvements to Google's launch of GA4 and cookieless tracking, marketers have taken on greater responsibility for data protection and transparency. Gamification in marketing provides an inconspicuous technique to get useful information via zero-party data collecting, collecting data in a non-intrusive way. Players willingly contribute information while participating in games, surveys, or interactive quizzes. This method builds confidence and enables firms to effectively personalize marketing efforts, all while respecting user preferences and privacy.

Another aspect to focus on is the conversion rate generated through gamification campaigns; converting leads into paying customers is the ultimate goal of any marketing campaign, and gamification has proven to be an effective conversion enhancer.

By incorporating engaging gaming mechanics into your sales funnel, you can effortlessly guide consumers through the buyer's journey. As players interact with your "games," they become more emotionally invested, making them more likely to do the intended action, such as making a purchase, signing up for a newsletter, or requesting a sample.

Finally, a key aspect to be considered for the study is the fact that gamification is also one of the most creative methods for transforming the learning process into an engaging adventure. Customers can better understand complex concepts when they are provided as interactive simulations, quizzes, and tutorials in games. This not only improves their knowledge, but it also makes a lasting impression, increasing the likelihood that they will remember and evaluate your services even if they do not convert immediately. (Eken, 2024)

This consideration is crucial as it confirms that gamification could be one of the most effective choices for educational marketing campaigns in the food sector, which this study aims to assess.

2.1.2 Case study: YUKA Application

In order to bring more relevance to the research at hand, it is useful to take the example of concrete cases where technology is an integral part of an educational process in favour of the population regarding food.

In the previous chapter, it was pointed out that the majority of the population, although not following a healthy diet, has a tendency in recent times to strive to improve this aspect. This is confirmed by the diffusion and use by many people of the Yuka application, a popular mobile application that evaluates food goods based on their health consequences.

This study investigates Yuka to explore the effectiveness of digital innovations in increasing consumer engagement and education in the food sector. Yuka uses nutritional data to inform consumers about their food options, potentially affecting purchasing decisions. This aspect is relevant for the study because it attempts to explore how digital tools might supplement traditional out-ofhome advertising to promote healthy eating habits and improve public health outcomes by examining Yuka's influence.

The Yuka app is an excellent example of how technology is exploited to the fullest to provide as much information as possible to users with respect to foodstuffs; at the basis of this technological process is the scanning of product barcodes and a database containing all ingredients, nutritional values and possible allergens. Furthermore, the application is based on an algorithm that calculates the score of

the scanned product based on defined criteria, the algorithm is also based on the Nutri-Score, a labelling system that evaluates the nutritional quality of food.

Finally, to make the experience complete Yuka makes recommendations to its consumers; in fact, it recommends alternative healthier products offering a personalised experience.

This, however, is not limited to food and beverages, but is a process that the app implements for many product categories, starting with food, and ending with cosmetics and all personal hygiene products.

The application already had over 20 million users in 2021 (today it has exceeded 30 million) and it is no coincidence that the country where it is most popular is Italy. A particularly interesting fact is that the use of Yuka is ageless; in fact, it is used by all generations starting from teenagers interested in scanning snacks, it is used a lot by women to be interested in the composition of the beauty products they use most frequently, but also by parents who want to choose the best foods, for example homogenized foods, for their children.

Precisely because of the vast number of people who use it on a daily basis after it became widespread, Yuka must necessarily be very transparent, and for this reason it is also under the control of the Competition and Market Authority (AGCM). (Ansa, 2021)

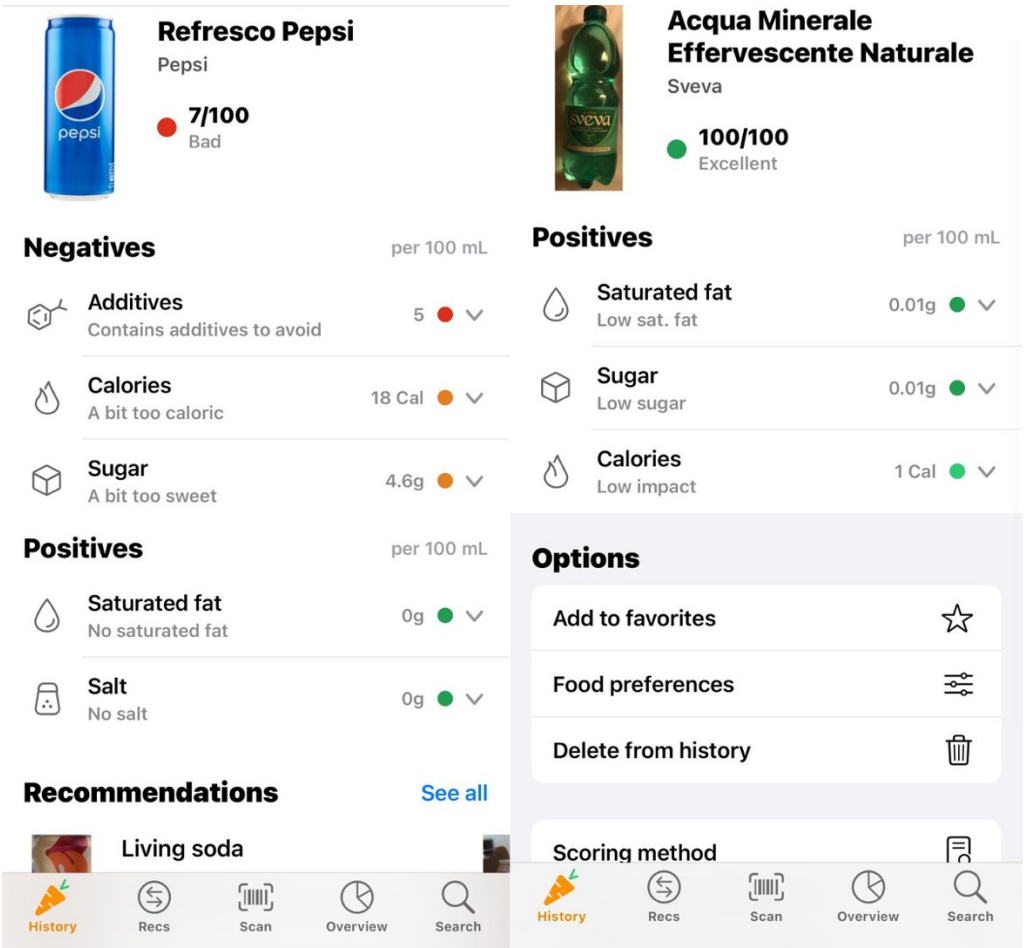


Figure 1: Differences in the evaluation of two beverages. (Source: Yuka App)

The image above shows how the application works and all its functions, and specifically focuses on the difference between a 100% healthy drink, i.e. water, and a drink that is defined as very unhealthy, Pepsi. Yuka provides a score in hundredths to determine in a more general way the healthiness of the food to be examined, then proposes a more detailed analysis of all the positive or negative elements related to the product, in particular the presence and quantity of calories, sugar, saturated fat, salt or additives.

In addition, as shown in the figure, if a product is considered unhealthy, better alternatives are automatically proposed, which is not the case with water.

From this image, it can be seen that Yuka is straightforward to understand and very intuitive to use; through the score at the top of the page and the traffic light-like colours, all users are able to fully use it without problems.

The addition of Yuka in the analysis sheds light on how interactions between digital technology and marketing techniques can raise customers' knowledge of their food options. Given the increased public interest about healthy eating, technologies like Yuka can help customers make more educated selections, improving their long-term health.

The focus on the Yuka app allows to consider the broader implications of such technology in food marketing, such as the potential reduction in the prevalence of diseases associated with poor diets due to enhanced information openness. The utilization of Yuka as a case study deepens the understanding of current food marketing dynamics and provides critical insights into future advertising tactics with a good social impact.

2.1.2.1 Nutri-Score focus

Figure 2: Nutri-Score (Source: https://www.repubblica.it/economia/diritti-e-consumi/diritticonsumatori/2021/12/15/news/sorpresa_l_etichetta_a_semaforo_per_gli_alimenti_non_piace_neanche_all_estero-330197533/)

The Nutri-Score, shown above in the figure, is the labelling system used to assess the nutritional quality of food and it has been adopted by several European countries to help consumers make more

informed food choices quickly while shopping. Using a colour scale from green (indicative of a healthier option) to red (less healthy), accompanied by a letter from A (best) to E (worst), it clearly shows the different rating of each food to all the population that is interested in purchasing the best choice possible for their meals.

The Nutri-Score has different objectives: it promises to **promote public health by reducing diseases that can be traced back to a poor diet** such as obesity and diabetes; it also enables **easier consumer choice by helping consumers** to quickly understand the nutritional content of products without having to read detailed nutrition labels; and it incentivises **better production practices by incentivising producers to** improve the nutritional quality of their products in order to score better on the Nutri-Score. (Nutri-Score, Il Nuovo Sistema Di Etichettatura Verso Scelte Più Salutari, n.d.)

Considering all the benefits of using this system, this research proposes to build on it for the production of interactive OOH campaigns in the food sector, considering this method as a valuable resource from which to develop a strategy that aims to inform and educate consumers before putting them in front of a choice regarding their nutrition.

2.1.3 Case Study: Successful Interactive OOH Campaigns in the Fast-Food Sector

Burger King "Whopper Detour" Campaign

Burger King created an innovative campaign called "Whopper Detour" that gamified the out-of-home advertising experience. Customers were encouraged to use their smartphone to get within 600 feet of a McDonald's shop in order to activate a promotion where they could buy a Whopper for one penny. The promotion utilized geofencing technology around McDonald's restaurants and prompted customers to visit the nearest Burger King to redeem their Whopper.

This ingenious use of gamification and location-based technology increased physical traffic to Burger King locations while also greatly improving the brand's image as humorous and inventive. It successfully used its competitor's locations to enhance its own sales, a daring and hilarious marketing strategy that earned extensive positive media coverage.

This campaign successfully applied gamification ideas by transforming a standard promotional offer into a fun, interactive game that engaged customers both physically and digitally. The challenge of going to a competitor's store to engage in a game generated excitement and encouraged sharing across social platforms, resulting in viral spread beyond the nearby physical locations.

The "Whopper Detour" reinforced Burger King's image as a brand that doesn't mind making lighthearted barbs at competitors, which appeals to younger groups looking for businesses that exude boldness and a sense of humor.

The campaign's gamification created a memorable experience that went beyond traditional advertising, resulting in increased customer engagement and happiness. This not only increased immediate sales, but also strengthened brand loyalty among participants.
The campaign received widespread media attention owing to its novel strategy to utilizing competitor locations and the gamification of the promotional offer. This positive exposure aided Burger King's status as a pioneer in fast-food marketing. (Koltun, 2019)

Figure 3: The "Whopper Detour" campaign (Source: https://www.contagious.com/news-andviews/burger-king-whopper-detour-strategy-cannes-interview)

The "Whopper Detour" campaign exemplifies how gamification may be successfully blended into interactive OOH advertising to improve a company's reputation. Burger King increased customer engagement, leveraged viral marketing, and reinforced a good brand image by turning a basic promotional offer into an engaging and amusing game. This case study demonstrates how wellexecuted gamified advertising campaigns may have a significant impact on consumer perception and brand success.

2.1.4 Creativity in OOH advertising

Previous research emphasises the importance of attention in the use of creative elements that are essential to make OOH advertising more appealing and memorable. In order to capture the attention of consumers and increase the likelihood of brand recall, OOH marketing also pays special attention to the use of colour, the appropriate choice of text that is inserted and even the depiction of people or products. The cohesion between visual and textual elements is well thought out in order to maximize the effectiveness of the advertisement.

Underlying these considerations are studies on people's cognitive processes, which, referring to Daniel Kahneman's theories on system 1 (fast, intuitive thinking) and system 2 (slow, deliberate thinking), propose a theoretical basis from which to determine the effectiveness of advertisements; in fact, they must be designed for a greater involvement of system 1, which facilitates a quick initial connection with the brand in question, which is then deepened and rationalised through system 2. (Veronika, 2023)

Additionally, internal factors such as mood and motivation have a substantial impact on creative performance. For example, an individual's emotional reaction to an interactive commercial may increase their engagement with the information, making marketing more effective.

Instead, dopamine, norepinephrine, and serotonin (neuromodulators) influence how creative impulses and cognition interact. Understanding these interactions might help explaining why certain types of OOH advertising are more effective in engaging different demographic groups, possibly due to differences in neuromodulator activities that influence how people perceive and respond to advertising creativity.

The dual pathway concept of creativity may help to explain generational disparities in advertising responses. Older and younger consumers may absorb creative OOH advertising differently because to differences in cognitive flexibility and neuromodulator function. This could influence how campaigns are developed to appeal to various age groups, hence increasing engagement through personalized creative tactics. (Khalil et al., 2019)

2.2 Consumer attitudes towards interactive OOH campaigns

For the purposes of this study, it is relevant to analyze how consumers respond to OOH advertising in their daily lives and how they succeed in capturing attention and increasing engagement. Recent studies have shown that, for example, many consumers interface with OOH marketing at times when they have their phone in their hand and look up from it; this underlines the fact that they tend to be more inclined to search online for what they see on the screens and thus to interact more. in this context, the introduction of elements that act as intermediaries between the phone and the advertising, such as QR codes, assume particular relevance.

This kind of engagement is an important part of advertising success because it bridges the gap between passive ad exposure and active customer response, which is required to drive conversions and establish brand loyalty.

Considering the tendency of audiences to switch from mobile phones to real life, a functional strategy is to integrate digital marketing campaigns with OOH campaigns, this synergy allows for the creation

of different touchpoints in consumers' daily lives making campaign content more memorable as consumers 'encounter' it in different environments, physical and digital.

Nowadays, where audiences move quickly between physical and online channels, these kinds of interactions make them more likely to take action, e.g. by increasing visits to the company's website or the purchase of the product in question. (Billups, 2023)

A further analysis must be dedicated to the influence of advertisement in the food choice; in fact, as shown by research such as that published by the WHO (World Health Organization) in the report "Digital Food Environments", digital platforms used as marketing media are particularly effective in modulating consumers' food choices.

As highlighted in the previous chapter, a large percentage of the Italian population does not follow specific rules for their diet, and this leads them to be more easily influenced in this area. The same concept is underlined by the study just mentioned, which shows that digital marketing and the spreading of information in the out-of-home environment can impact consumer decisions. (Nutrition, 2021)

Considering the trend of consumers eating 1 in 5 meals outside the home; the influence of OOH marketing strategies implemented by food companies should not be underestimated. Therefore, the wide visibility of these types of strategies and their creative appeal plays a pivotal role in the choice of consumers, who are enticed to indulge in a meal out of home by billboards or digital signs that emphasise the variety, convenience and quality of the food being offered, making it more appealing in the eyes of the public (especially if undecided at the time). (IRI United Kingdom, 2018)

Figure 4: McDonald billboard (Source: https://medium.com/propagandacom416/the-thing-youwant-when-you-order-a-salad-98b8f45fba81)

The billboard depicted in the "Figure 4" is a good example of how junk food companies, in this specific case McDonald's, try (and succeed) in enticing people to switch from a healthy and physically beneficial choice to one that is much tastier and more appealing in the moment, but which in the long run if repeated turns out to be bad for one's health.
The purpose of this research is precisely to ensure that a healthy option, such as in this case a salad, is perceived as equally good not only because it benefits health, but also in terms of taste.

2.3 Ethical consideration for Nutrition Awareness

Incorporating educational material into digital OOH advertising in the food sector raises substantial ethical concerns, particularly when pushing unhealthy food products. The widespread promotion of high-calorie, low-nutrient foods via entertaining digital displays raises worries about increasing public health problems like obesity and diabetes.
While digital OOH advertising provides creative techniques to attract customer attention and educate them about food options, the ethical issues of utilizing such strong tools to sell potentially dangerous items must not be disregarded. Advertisers bear a moral duty to ensure that the persuasive power of digital OOH is used to promote healthier food surroundings rather than contributing to harmful eating habits. This entails striking a careful balance between commercial interests and public health goals, with an emphasis on promoting healthful choices and providing clear messages about food quality. Furthermore, targeting vulnerable populations, including children, with ads for unhealthy foods, using gamification or other interactive techniques, poses further ethical dilemmas, requiring rigorous regulatory oversight to protect consumer well-being and promote ethical advertising practices.
Given the negative effects caused by the consumption of junk food and considering the significant contribution that advertisements make to the sale of junk food, thought has been given to how to limit its consumption. One of the ways to diminish these side effects is to apply restrictions to advertisements, just like in the tobacco and alcohol markets. At the basis of this approach there are relevant ethical considerations that aim to protect public health by encouraging more conscious and healthy food choices through more responsible and transparent communication. Researchers have found that banning this type of advertisements leads consumers to turn to healthier options, as advertisements usually have the tendency to decrease sensitivity to product healthiness, leading consumers to overlook this aspect when making their decision.

The ethics of this approach focuses on the need for a balance between business independence and corporate social responsibility, making sure that marketing strategies pay special attention to consumers' information rights and their health.

The consumers' correct information is always one of their most important rights, but it is even more crucial when it comes to OOH advertising, whose main characteristic is their visibility, they also need more control for the protection of the most vulnerable population. (Dubois et al., 2017)

In the food industry, very often characteristics of a product are emphasized (such as special taste or health benefits) because they would otherwise only be noticed by the consumer after the food has been purchased and consumed. In the case where the consumer chooses to buy a food product he has never tried, he is strongly influenced by the characteristics that the brand decides to emphasize in its ad; therefore, the consumer must be able to trust the loyalty of the brand that is providing him with the product information at that moment. Similarly, the brand can make an analysis of the features that most appeal to the consumer; the study of these preferences can be based on data collected during gamified adverising experiences. (Ackerberg D.,2003)

To unite these different needs, educational campaigns can be implemented, which (while maintaining the playful aspect linked to gamified or interactive elements) show the public in a sincere and transparent manner, providing useful information for public wellbeing, raising awareness of healthy eating and finally entertaining them, keeping interest in what is being proposed high.

2.4 Defining the Phenomenon

2.4.1 Research Gap and con2nua2on of exis2ng literature

The results of a study conducted by Folkvord, F., Anschütz, D. J., Buijzen, M., & Valkenburg indicate that playing advergames containing food suggestions increases overall energy intake in children, regardless of the brand or type of product advertised; this proposes a theoretical starting point from which to demonstrate whether this effect is also the same for people belonging to different generations, who when confronted with an advertisement with an educational purpose may have emotional reactions that are decisive for the success of the intent, thus filling a gap in previous research. Furthermore, the problems concerning people's exposure to advertisements concerning unhealthy food were exposed, but no 'educational' solution to this problem was proposed by companies that on the contrary produce healthy food.

Additionally, there has been little research into the impact of including nutritional education content into out-of-home advertising efforts. More research is needed to discover how educational messages might best be incorporated into these initiatives to improve public health outcomes.

2.4.2 Research Question definition and study objectives

Research question: “How do interactive out-of-home (OOH) marketing campaigns, incorporating innovative technologies and educational approaches, influence food awareness and consumer behavior on nutrition across generations?”

This question seeks to explore the effect of interactive OOH marketing campaigns, dwelling in the analysis also on possible generational differences, on audience perception and interaction with nutritional and food information. Specifically, it aims to analyze how (positively or negatively) the effect of technologies such as gamification in advertisements and the integration of educational approaches within them influence and transform the way consumers of different generations understand and react to such advertisements.

Specifically, the objectives of this research are diverse and start from the evaluation of the impact of innovative technologies, which includes the analysis of how features such as interactive games can enhance learning and facilitate the memorization of information related to food products that may prove useful and important for health.

A further aim is to explore how the integration of educational approaches succeed in influencing consumer choice, including the evaluation of messages aimed at explaining health benefits, risks associated with specific foods and nutritional balance, and whether such messages succeed in changing the eating behaviour of consumers who come into contact with them.

Finally, this research is not limited to a particular age range of possible consumers, but on the contrary aims to highlight generational differences in the choice of behaviour that is adopted.

This research is useful not only to investigate the educational potential of interactive OOH commercials, but also to add to the broader discussion on how advertising can help public health goals by increasing nutrition through informed food choices. The aim of this study is to provide evidence-based recommendations that can be used to guide future food marketing initiatives.

2.4.3 Variables definition

Independent variable (X): implementation of interactive Out of Home (OOH) advertisement with advanced technologies.

Dependent variables:

- Nutrition Literacy (Y1): Measures the consumer's ability to access, understand, and use nutritional information in order to make informed food choices (changing the behavior in a positive way). It entails comprehending the concepts of a balanced diet, reading nutrition labels, and determining the nutritional quality of food.

This variable could be measured by changes in the eating behavior of consumers exposed to interactive OOH campaigns. Includes indicators such as preference for healthier food choices and reduction in consumption of unhealthy foods.

- Educational Awareness (Y2): Reflects the level of understanding of nutrition education among consumers influenced by the campaigns. It includes the knowledge gained about the nutritional aspects and health impacts of food choices.

Moderator:

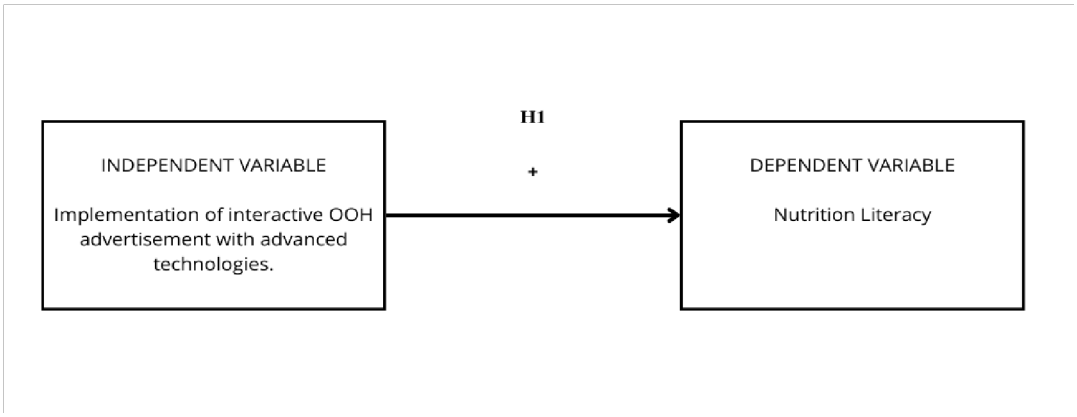
- Target's age (W): Examines how the effect of interactive OOH campaigns on the dependent variables may vary according to the age of the audience.

2.4.4 Theoretical framework and hypothesis definition

Hypotheses:

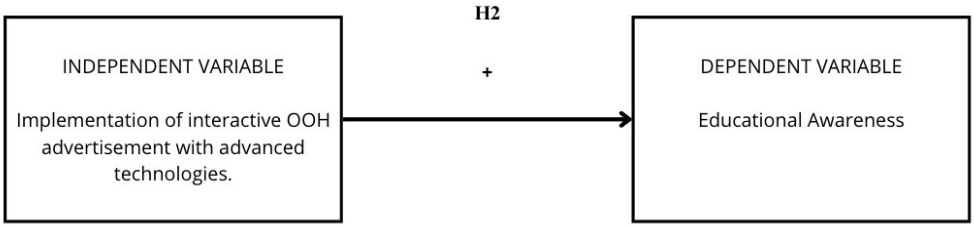
H1: The implementation of Interactive OOH Campaigns (X) is expected to have a positive impact on nutrition literacy (Y1).

In particular, it is hypothesized that interaction with informational content or virtual experiences during these campaigns will promote more informed food choices.



H2: The implementation of Interactive OOH Campaigns (X) will contribute to increasing educational awareness (Y2).

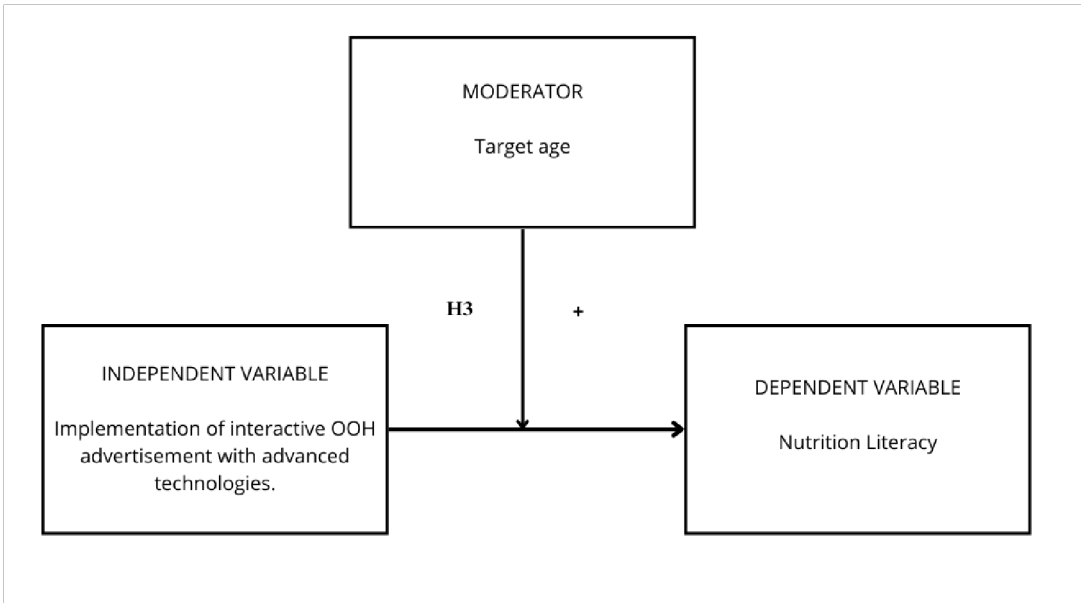
It is hypothesized that the use of interactive elements can improve understanding of the nutritional aspects of products, thus promoting greater educational awareness among users.



H3: The effect of the implementation of Interactive OOH Campaigns (X) on the Nutrition Literacy (Y1) will vary according to the age of the target group (W).

It is hypothesized that the impact of the interactive OOH campaign on the nutrition literacy varies depending on different age groups, with disparities between younger and older generations.

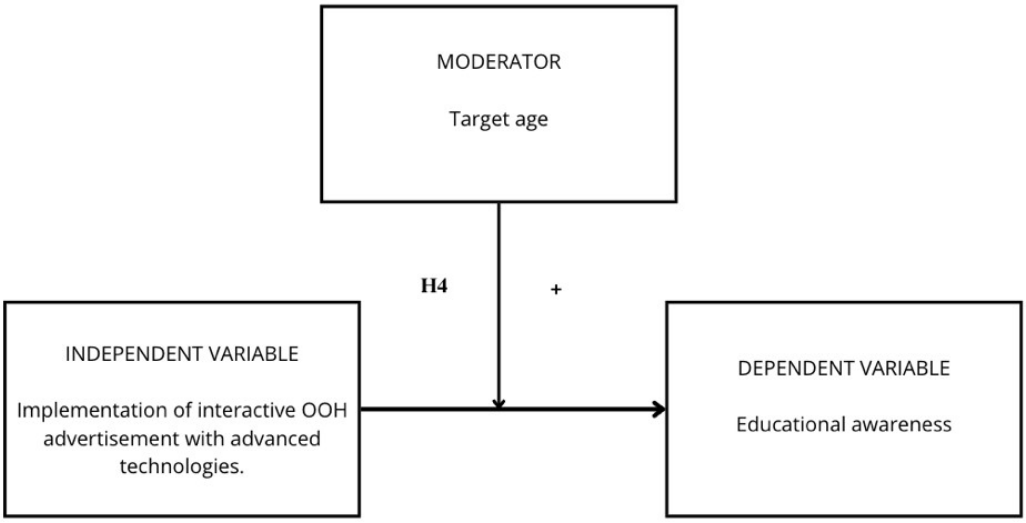
Specifically, it is hypothesized that the younger generations may react more positively to the use of technology in the OOH and that this may also positively influence their nutrition literacy, while a more moderate reaction is expected from the older generations.



H4: The effect of the implementation of Interactive OOH Campaigns (X) on educational awareness (Y2) will vary according to the age of the target group (W).

It is hypothesized that impact of the interactive OOH campaign on the nutrition literacy varies depending on different age groups, with disparities between younger and older generations.

Specifically, it is hypothesized that the younger generations may react more positively to the use of technology in the OOH and that this may also positively influence their educational awareness, while a more moderate reaction is expected from the older generations.



This research makes numerous contributions and, in practice, will help businesses improve the use of emerging technologies like virtual and augmented reality in OOH campaigns to generate compelling customer experiences.

According to studies, food education through OOH programs can help food firms differentiate themselves by offering not only products but also valuable educational opportunities. It also promotes the continual evaluation of customer sentiments, allowing businesses to quickly change their marketing efforts.

The appropriate incorporation of digital aspects into OOH campaigns emerges as a priority, with an emphasis on the beneficial influence of digital advertising attitudes on consumer experience (CBE). Finally, this study emphasizes the importance of ethical considerations and social responsibility in encouraging healthier eating habits.

2.5 Conclusion

This chapter has explored in depth the challenges and opportunities facing the food industry, with a particular focus on how interactive technologies and gamification in Out-of-Home (OOH) advertising can transform marketing practices and influence generational consumer behaviour.

It has been demonstrated that technological innovation in OOH marketing can not only increase efficiency and transparency in food production, distribution, and consumption, but also offer an entirely new and more interesting shopping experience. This shift is necessary to address growing

public health problems by encouraging consumers to make more conscientious and informed food choices.

Gamification, in particular, has shown to be an effective method for enhancing customer engagement by capitalizing on underlying competitive inclinations and needs for fulfillment to create a stronger, more enduring relationship with businesses. The Yuka app case study shed more insight on how digital technologies can be utilized to improve consumer education on the health implications of food products, emphasizing technology's critical role in enriching the information experience.

Despite the promise of these modern technology, there are considerable ethical concerns, notably around the promotion of unhealthy food products to vulnerable audiences, such as children. This raises important considerations regarding firms' obligation to use the persuasive power of OOH advertising ethically, balancing economic interests with public health goals.

Looking to the future, this study aims to further explore how interactive and educational advertising campaigns can be optimized for different generational groups, expanding the understanding of how various ages respond to these innovative stimuli. The aim is to provide evidence-based recommendations that can guide future food marketing initiatives, not only to drive sales, but also to promote positive social impact.

In conclusion, while the chapter has laid the theoretical and practical foundations for the use of interactive technologies in OOH marketing, the next step of the research will aim to quantify and qualify the impact of such technologies through a more in-depth analysis and on the data that will be collected through the formulation of a questionnaire. This will be essential to validate the proposed hypotheses and to precisely define the role of digital innovation in shaping future trends in the food sector**.**

CHAPTER 3

3.1 Research objective

The main objective of the research conducted in this paper is the evaluation of the effectiveness of Out-Of-Home campaigns integrated with technological and interactive tools and educational approaches, in addition are examined the effects on nutrition literacy and educational awareness among different generations of consumers.
The aim of this research was to demonstrate that the use of such tools as gamification, interactive displays and educational contributions positively influence the consumers who come into contact with them, mainly if they are younger generations; thus, as the study shows in this case, if they are individuals up to 42 years old. Specifically, the research aims to assess the influence of these OOH campaigns on the dependent variables described above.

3.2 Method and procedure plan

The experimental study carried out in this chapter consists of a conclusive causal between subjects 2x2 research design. The experiment developed by administering a questionnaire utilizing the Qualtrics XM platform. The results are based on responses from an independently administered survey performed in Italy in May 2024.
The methodology used for sampling is non-probabilistic; specifically, survey participants were chosen on the basis of a convenience method, which maximizes the speed and ease of access and choice of elements of the target population.
For these reasons listed above, this administration technique has several advantages, both in terms of speed of data collection and its high response rate; it also does not require any economic cost.

3.3 Sampling description

The target sample was chosen by including respondents of all age groups and making no distinction based on gender, as the latter was not expected to influence the results of the experiment in a statistically significant manner. The distribution of the survey reached up to 200 individuals, of which 171 respondents participated in the study fully, answering all questions to which they were subjected entirely.
The 29 responses left incomplete were eliminated according to the data cleaning procedure.

Respondents were reached via an anonymous link or QR code generated by the online platform Qualtrics XM. Specifically, the link was sent via instant messaging applications and through dissemination in social media networks, the main distribution channels being WhatsApp, Instagram, etc.

The population sample included individuals from different age groups and without distinction of background, all of them located in Italy.

Therefore, the average age of the population sample reached by the survey was around 30 years old, although the age range fluctuated from Generation Z, which includes individuals with a minimum of 11 years old and the Silent Generation, which includes individuals over 78 years old.

In order to carry out the study, the generational brackets of the respondents were divided into only two groups, resulting in one generation consisting of younger and one of older brackets.

Indeed, Generation Z and the Millennials were combined in one group (reaching a maximum of 42 years for this group) and in a second group Generation X, Baby Boomers and the Silent Generation (which did not raise the average age by too much as it is the one with the lowest number of respondents of all the branckets).

3.4 Data collection and questionnaire composition

There was a total of 13 questions within this questionnaire, of which 12 were specific and 1 demographic.

In order to manipulate the dependent variable (type of OOH: interactive advertising vs. traditional static billboard), two different randomized conditions consisting of two visual stimuli were implemented.

The first scenario comprises a video featuring an example of an interactive Out-Of-Home advertising campaign in the food sector, specifically a digital installation showing the operation of a game in which passers-by can take part to win a discount voucher.

Specifically, the game presented in the video (first stimulus) invites passers-by to match a food item to the correct letter of the Nutri-Score, then the nutritional values of the selected food item are briefly described, finally, if the match is correct, the game participant wins a 10% discount voucher that can be downloaded via QR code.

The second scenario, on the other hand, consists of an image depicting an example of a traditional Out-Of-Home marketing campaign (static billboard) in the food sector.

Specifically, the picture shows a traditional billboard of a campaign that aims to push consumers towards good nutrition (the campaign claim is on the billboard).

As mentioned above, the data to be analyzed below were collected through a questionnaire, which is divided into four main parts.

In the initial part, there is an introduction in which the reason for the experimental study is briefly explained, ensuring complete and total compliance with the privacy regulations concerning the anonymity policy and put in place during data collection and management.

The second part of the survey is dedicated to the demographic aspect, in which the age (Moderator) of the respondents is asked.

The third part consists of a randomized block composed of the two different scenarios explained above; in fact, each respondent could only be exposed to one of these scenarios.

The randomization process of the visual stimuli was essential in the structure of the questionnaire for the success of the survey; it was programmed in such a way as to obtain a uniform number of exposures to both stimuli.

Both stimuli consisted of two mock-ups of OOH activities realized through the use of the Canva platform and without the inclusion of images or logos attributable to specific brands, in order to avoid any possible conditioning or cognitive bias related to brand sentiment.

Finally, the last part of the questionnaire was submitted to the respondents after being subjected to one of the two visual stimuli. Specifically, this block has 12 questions within it: the first 5 relate to the first dependent variable (Nutrition Literacy) and the next 7 to the second dependent variable (Educational Awareness).

In order to assess these two variables, a Likert scale was used based on 7 rating points (starting from ‘strongly disagree’=1 to ‘strongly agree’=7).

3.4 Experimental results

3.4.1 Data analysis

It was used SPSS (Statistical Package for Social Science) software to analyze the data collected through the survey generated on Qualtrics XM. The data were exported to the software and an exploratory type of factor analysis was done so that the items of the scales that were used in the conceptual model could be examined and validated.

Then principal component analysis was initially done as an extraction method, applying Varimax as a rotation technique, which allows the results to be clearer for interpretation by increasing the differences between the extracted factors.

Accordingly, Kaiser's rule was followed, whereby looking at the total explained variance table, it was verified that the eigenvalues (eigenvalues) were greater than 1 and also that the cumulative variance

as a percentage was greater than 60%. Finally, the communality tables and the component matrix were also examined. All items were found to have an extraction value greater than 0.5 and a loading score greater than 0.3, consequently all items were retained within the scales, validating them.
After validation, it is also necessary to perform a reliability test on them, so as to verify the level of reliability of each. In order to continue, we pause to observe the value of the Cronbach Alpha of both constructs, as it had to be above 60%.
With regard to the scale concerning the first dependent variable, a value of 0.965 is found, while in the scale concerning the second dependent variable a value of 0.942 is recorded; this allows us to state that both scales can be considered reliable.
In addition, the KMO test was performed, which aims to measure the adequacy of sampling; in the case of the first dependent variable, the value found is 0.920, while regarding the second dependent variable, the value is 0.874. Again, therefore, it can be determined that both variables have an adequate level of adequacy (since > 0.6), this determines adequate sampling for factor analysis. Finally, Bartlett's test of sphericity was performed and a p-value <0.001 was found in both cases (p-value < a=0.05), this allows us to state that the null hypotheses can be rejected with a high degree of certainty, suggesting that significant correlations exist between the two variables.

3.4.2 Hypotheses results

Following the conduct of the factorial analysis and reliability tests, the main hypotheses of the two conceptual models of the experimental research were examined; this examination will make it possible to confirm or reject their statistical significance and thus their relative success.

H1

Hypothesis H1 states that there is a significant difference in “Nutrition Literacy” (dependent variable Y1) between the two groups of survey participants, depending on the type of stimulus they were subjected to, thus the two types of OOH campaigns, interactive or traditional.
To test this hypothesis and check its statistical significance, a One-Way ANOVA (one-way analysis of variance) was performed; this test is done to compare the means of multiple groups and determine whether the differences between the means are statistically significant.

Specifically, the independent variable (X) has a nominal categorical nature and is separated into two different conditions coded 0 (traditional OOH campaign) and 1 (interactive OOH campaign); while the first dependent variable (Y1) has a continuous metric nature.

After performing the ANOVA, the values in the descriptive statistics tables are compared, determining whether the. Difference between the averages of the groups is statistically significant; consequently, it was determined that the group of respondents exposed to the condition coded with 0 (90 individuals) had a mean of 3.1867, while the group of respondents subjected to the condition coded with 1 (81 individuals) had a mean of 5.7012.
In addition, again with regard to the ANOVA table, a p-value relative to the F-test of 0.001 (a value indicating the probability that the differences between the groups are due to chance) was found, which is thus found to be statistically significant (p-value < a=0.05).
Since the effect of variable X on Y1 was confirmed, we conclude by accepting hypothesis H1 (first main effect), which is thus proved.

H2

Hypothesis H2 asserts that there is a significant difference in "Educational Awareness" (dependent variable Y2) between the two distinct groups of participants who underwent the survey, based on the type of stimulus they viewed while taking the survey: i.e., one of the two types of OOH campaigns, interactive or traditional.
As with hypothesis H1, a One-Way ANOVA (one-way analysis of variance) was performed to test this hypothesis (H2) and check its statistical significance.

Once again, the two variables are different in nature, the independent var (X) is nominal categorical in nature and is distinct in two different conditions coded with 0 (traditional OOH campaign) and 1 (interactive OOH campaign) while the second dependent variable (Y2) is continuous metric in nature.
After carrying out the ANOVA the values within the descriptive statistics table are examined, here it can be seen that the group of respondents who were subjected to the condition coded with 0 (90 individuals) found a mean of 3.4175, while the other group examined, that is, the group who were exposed to the condition coded with 1 (81 individuals) recorded a madia of 5.6384.
Accordingly, as for hypothesis H1, the averages were compared and the p-value related to the F-test was examined, which was found to be 0.001 (p-value < a=0.05), making it statistically significant.
Since the effect of variable X on Y2 was confirmed, we conclude by accepting hypothesis H2 (second main effect), which is thus proved.

H3

Hypothesis H3 states that there is a significant interaction effect between the type of OOH (Out-OfHome) advertising campaign and the age of the participants (moderator variable W) on "Nutrition Literacy" (Y1); therefore, we want to test whether the effect derived from the different types of OOH on the dependent variable Y1 varies according to the generation of the survey participant.
The survey respondents were divided into two groups according to their generation; thus, according to their age; the first group consists of all respondents belonging to the Z-Millennials generation (11 to 42 years old) and the second group consists of all respondents belonging to the X-Baby BoomersSilent Generation (43 years old and older).
Two-Way ANOVA was used to test the H3 hypothesis, which allows us to examine the joint interaction effect of the independent variable (type of OOH: traditional vs. interactive) and the moderator variable (age) toward the first dependent variable Y1.

Specifically, the independent variable (X) and moderator variable (W) are nominal categorical in nature and are both distinct in two conditions coded with 0 (traditional OOH campaign; X-Baby boomers-Silent generation) and 1 (interactive OOH campaign; Z-Millennials) while the first dependent variable (Y1) is continuous metric in nature.
After carrying out the ANOVA, the tables of descriptive statistics are examined; in this case, it can be seen that the group of respondents who were subjected to the condition coded with 0,0 (37 individuals) found a mean value of 3.4432; the respondents who were subjected to the visual condition coded with 0,1 (53 individuals) recorded a mean value of 3. 0075; respondents who were subjected to the condition coded with 1,0 (25 individuals) determined a mean value of 4.8880; finally, respondents who were subjected to the visual condition coded with 1,1 (56 individuals) found a mean value of 6.0643.
To examine the results obtained, the between-subjects effects test table is considered; in this table, a relative p-value for the adjusted model of 0.001 (p-value < a=0.05) is found to be statistically significant.
In addition, all effects of each independent variable and the interaction between them (X, W, X*W) toward the dependent variable Y1 (Nutrition Literacy) were examined.
The first direct effect between X and Y1, resulted in a p-value of 0.001. Regarding the second direct effect between W and Y1, a p-value of 0.075 emerged. In contrast, regarding the joint interaction effect between X and W toward Y1, the p-value was 0.001.

Therefore, there was a statistically significant difference between the group averages, this then confirmed the joint effect between X and W toward Y1, proving the H3 moderation hypothesis (first interaction effect).

H4

Hypothesis H4 states that there is a significant effect between the type of OOH (Out-Of-Home) advertising campaign and the age of the participants (moderator variable W) on "Educational Awareness" (Y2); therefore, we want to test whether the effect derived from the different types of OOH on the dependent variable Y2 varies according to the generation of the survey participant. The division of the two groups according to their generation is, of course, the same as in Hypothesis H3, and likewise the joint interaction effect between the independent variable (type of OOH: traditional vs. interactive) and the moderator variable (age) toward the first dependent variable Y2 is tested with a Two-Way ANOVA.

Specifically, as in Hypothesis H3, the independent variable (X) and the moderator variable (W) are nominal categorical in nature and are both separated into two conditions coded with 0 (traditional OOH campaign; X-Baby boomers-Silent generation) and with 1 (interactive OOH campaign; ZMillennials), while the first dependent variable (Y2) is continuous metric in nature.
After conducting the ANOVA, the tables of descriptive statistics are examined, where it can be seen that the group of respondents who were subjected to the condition coded with 0,0 (37 individuals) found a mean value of 3.6795; respondents who were subjected to the visual condition coded with 0,1 (53 individuals) recorded a mean value of 3.2345; respondents who were subjected to the condition coded with 1,0 (25 individuals) determined a mean value of 4.8114; finally, respondents who were subjected to the visual condition coded with 1,1 (56 individuals) found a mean value of 6.0077.
To examine the results obtained we consider the between-subjects effects test table, in this table we find a relative p-value for the adjusted model of 0.001 (p-value < a=0.05), which turns out to be statistically significant.
In addition, all the effects of each independent variable and the interaction between them (X, W, X*W) toward the dependent variable Y2 (Educational Awareness) were examined.
The first direct effect between X and Y2, resulted in a p-value of 0.001. Regarding the second direct effect between W and Y2, a p-value of 0.093 emerged. In contrast, regarding the joint interaction effect between X and W toward Y2, the p-value was 0.001.

Therefore, as in the H3 hypothesis enunciated above, a statistically significant difference between the group averages could be seen; this confirmed the joint effect between X and W toward Y2, proving the H4 moderation hypothesis (second interaction effect).

3.5 Conclusion

After testing all of the assumptions presented in this study, we may reach some important findings. The results revealed that independent variables such as the kind of OOH (interactive vs traditional) and the moderating variable age (groups of different generations) have a substantial impact on nutrition literacy and educational awareness.

The results revealed that the usage of digital and interactive OOH advertisements increases consumers' knowledge and grasp of nutritional principles and educational content.

Specifically, the results showed that interactive OOH campaigns have a greater impact on educational awareness than traditional ones, and that younger generations (Z-Millennials) are more responsive to visual and interactive stimuli than older generations (X-Baby Boomers-Silent Generation). These results confirm the importance of tailoring advertising campaigns to the demographic characteristics of the target audience.

CHAPTER 4

4.1 Final consideration

After confirming all the hypotheses developed in this study, the last section will be focused on drafting some final consideration, pointing out managerial contributions of the study and carefully addressing its limitations and possible directions for future research. This comprehensive strategy will guarantee that the results of the investigation are not just validated, but also placed within a larger context of continual improvement and innovation in marketing research.

4.2 Managerial implications

OOH campaigns play an extremely relevant role in brand communication strategy, and technological innovation and the integration of interactive elements can also be leveraged in this regard. The world of Out-Of-Home continues to offer many opportunities for anyone who decides to make the most of it, which is why it is essential for managers and marketers to be clear about the practical implications at the micro and macro levels.

The managerial implications from the research conducted in this paper focus on practical aspects that can be implemented in order to improve engagement, reputation, and also brand equity.

Taking the results of this study into consideration, it can be seen that personalization of OOH campaigns is an excellent starting point; in fact, segmenting audiences by age allows for target specific preferences. The use of technologies such as virtual reality can attract the attention of a younger audience, while clear and informative messages are more effective for an older target audience.

Implementing technologies within OOH campaigns allows for facilitated collection of the data needed to evaluate their effectiveness; making it easier to choose the most appropriate strategy to use could be the integration of real-time feedback systems.

At the macro level, there are several implications, also discussed earlier, related to the promotion of public health through the use of OOH campaigns; in fact, they can be used in order to raise awareness of important issues such as health and well-being. One cue for companies that also have an educational objective in their campaigns can be to collaborate with organizations that engage in raising awareness toward issues such as public health.

Another key aspect to consider among the managerial implications of this research is the increase in brand reputation resulting from the link the company creates with issues relevant to the public, demonstrating its active commitment to improvement.

Although awareness was one of the main goals of this OOH campaign, the implications go further, leading to greater consideration by consumers (due to the informative and engaging messages), and consequently a higher likelihood of conversion, which tends linearly to higher revenues and profits for the company.

Another aspect related to brand reputation is WOM (word of mouth), or the spontaneous sharing by consumers of their positive brand-related experience, which amplifies the impact of the campaign through social networks. The generation of WOM is directly related to the memorability of the campaign, so the inclusion of interactive elements, as tested in this paper, greatly increases the likelihood that the campaign will be remembered.

Therefore, in designing experiences related to OOH campaigns, one is not even limited to attraction and involvement, but must get to the sharing of them by the population.

The last factor to be considered, but no less important than the previous ones, is that of environmental sustainability: digital OOH campaigns are a greener and more sustainable option for marketers since they reduce the consumption of printed materials, reduce the frequency of replacements, improve energy efficiency, and lower carbon emissions. Adopting digital technologies for OOH campaigns not only reduces environmental impact, but also increases flexibility and efficiency in advertising methods.

4.3 Limitations and future research

Looking at the study conducted, some limitations can be determined that could be accommodated and developed in future research.

As a first thing, the study does not take into consideration the gender of the population taken as a sample in the survey; it was not initially considered as a determinant variable for the purposes of the research, but it could be a cue for future research; in fact, one could consult data from a survey carried out on women and compare it with the results of the same survey carried out on men, understanding if indeed there are differences in thinking about it.

Another limitation for this research may be determined by the language in which the survey was conducted; in fact, all data were collected in Italian, so the results of the experiment may be applicable to the Italian national context. This aspect is due to a greater findability of the data, but in the case of future research one may consider expanding the spectrum of respondents by developing the data collection process in English.

Such an approach would also broaden the scope of managerial implications, which for the study conducted concern the national context, but which would expand to an international if not global context.

A quantitative method of data collection was adopted for the conduct of the study, as it is an advantageous method because of its speed (time efficient) and...; however, this method has a disadvantage in terms of depth of data, this problem could be solved by conducting a qualitative analysis (or even partly qualitative and partly quantitative). Qualitative analysis, such as conducting focus groups or in dept interviews, would allow for a greater depth and level of detail in the data collected, at the cost of greater time expenditure.

In addition, a methodological approach other than the traditional one can be evaluated; by adopting a more innovative method, the most suitable technologies can be exploited to be able to maximize the effectiveness and efficiency of the study. For conducted research, the application of neuroscience to marketing could be implemented, leading to a completely different methodological approach. Neuroscience has several tools that can be used to monitor fundamental aspects of human behavior: through eye-tracking and its “heat maps” (i.e., heat maps that with their different colors allow one to understand which parts of the ad were looked at the most) one could monitor audience attention for the digital OOH campaign; another example of neuroscientific approach for research methodology is the use of GSR (Galvanic Skin Response), which is the electro-conducted skin response that is obtained by monitoring the level of electricity conducted by the skin that increases with sweating, this data reflects the level of arousal or sensory stimulation of the consumer. There are many of these innovative methods of data collection that can be considered for future research, however, the costs associated with them can be significant and for this reason well valued.

CONCLUSION

This research examined the influence of interactive and educational OOH campaigns on potential consumers of different generations. The results showed that the use and integration, in OOH campaigns, of technologies and gamification aspects can have positive effects in consumer perception, especially if they are young people.

This study focused on the analysis of aspects not related to specific brands, but related to the nutritional awareness of the population, which appears to be greater when it comes to these kinds of OOH marketing campaigns.

In response to the research question, “How do interactive out-of-home (OOH) marketing campaigns, incorporating innovative technologies and educational approaches, influence food awareness and consumer behavior on nutrition across generations?” it can be stated that such campaigns not only promote healthy food choices, but also enrich the knowledge and nutritional awareness of the consumers they come in contact with; specifically, this effect is greater for audiences up to 42 years of age.

The practical implications that have been addressed may be significant for companies in the industry, which could gain competitive advantages and improve their marketing strategy, as well as aspects related to public welfare.

In addition, with regards to future studies, several insights are proposed for further study and to improve its effectiveness.

APPENDIX

- Descriptive statistics: Moderator (Age)

Qual è la tua età?

		Frequenza	Percentuale	Percentuale valida	Percentuale cumulativa
Valido	11-26 anni (Generazione Z)	73	42.7	42.7	42.7
	27-42 anni (Millennials)	36	21.1	21.1	63.7
	43-58 anni (Generazione X)	46	26.9	26.9	90.6
	59-77 anni (Baby boomers)	14	8.2	8.2	98.8
	Dai 78 anni in su	2	1.2	1.2	100.0
	Totale	171	100.0	100.0	

- Factorial analysis: DV1

Varianza totale spiegata

Componente	Autovalori iniziali			Caricamenti somme dei quadrati di estrazione		
	Totale	% di varianza	% cumulativa	Totale	% di varianza	% cumulativa
1	5.795	82.783	82.783	5.795	82.783	82.783
2	.443	6.323	89.106			
3	.234	3.346	92.452			
4	.194	2.768	95.220			
5	.129	1.849	97.069			
6	.114	1.622	98.691			
7	.092	1.309	100.000			

Metodo di estrazione: Analisi dei componenti principali.

Comunalità

	Iniziale	Estrazione
Per ciascuna delle seguenti affermazioni indica il tuo grado di accordo o disaccordo scegliendo l'opzione che meglio rappresenta la tua opinione. - La campagna pubblicitaria mi ha stimolato a cercare ulteriori informazioni sulle abitudini alimentari sane.	1.000	.821
Per ciascuna delle seguenti affermazioni indica il tuo grado di accordo o disaccordo scegliendo l'opzione che meglio rappresenta la tua opinione. - La campagna mi ha incoraggiato a fare scelte alimentari più salutari.	1.000	.840
Per ciascuna delle seguenti affermazioni indica il tuo grado di accordo o disaccordo scegliendo l'opzione che meglio rappresenta la tua opinione. - Valuto positivamente il contributo educativo della campagna riguardo le scelte alimentari sane.	1.000	.794
Per ciascuna delle seguenti affermazioni indica il tuo grado di accordo o disaccordo scegliendo l'opzione che meglio rappresenta la tua opinione. - Ritengo che la campagna fornisca informazioni utili per la salute o la nutrizione.	1.000	.822
Per ciascuna delle seguenti affermazioni indica il tuo grado di accordo o disaccordo scegliendo l'opzione che meglio rappresenta la tua opinione. - La campagna ha stimolato il mio interesse rispetto a questioni alimentari.	1.000	.844
Per ciascuna delle seguenti affermazioni indica il tuo grado di accordo o disaccordo scegliendo l'opzione che meglio rappresenta la tua opinione. - La campagna ha influenzato il mio giudizio sull'importanza della nutrizione nella scelta degli alimenti.	1.000	.888
Per ciascuna delle seguenti affermazioni indica il tuo grado di accordo o disaccordo scegliendo l'opzione che meglio rappresenta la tua opinione. - La campagna ha evidenziato l'importanza di una varietà alimentare nella dieta.	1.000	.785

Metodo di estrazione: Analisi dei componenti principali.

Matrice dei componenti[a]

	Componente 1
Per ciascuna delle seguenti affermazioni indica il tuo grado di accordo o disaccordo scegliendo l'opzione che meglio rappresenta la tua opinione. - La campagna pubblicitaria mi ha stimolato a cercare ulteriori informazioni sulle abitudini alimentari sane.	.906
Per ciascuna delle seguenti affermazioni indica il tuo grado di accordo o disaccordo scegliendo l'opzione che meglio rappresenta la tua opinione. - La campagna mi ha incoraggiato a fare scelte alimentari più salutari.	.917
Per ciascuna delle seguenti affermazioni indica il tuo grado di accordo o disaccordo scegliendo l'opzione che meglio rappresenta la tua opinione. - Valuto positivamente il contributo educativo della campagna riguardo le scelte alimentari sane.	.891
Per ciascuna delle seguenti affermazioni indica il tuo grado di accordo o disaccordo scegliendo l'opzione che meglio rappresenta la tua opinione. - Ritengo che la campagna fornisca informazioni utili per la salute o la nutrizione.	.907
Per ciascuna delle seguenti affermazioni indica il tuo grado di accordo o disaccordo scegliendo l'opzione che meglio rappresenta la tua opinione. - La campagna ha stimolato il mio interesse rispetto a questioni alimentari.	.919
Per ciascuna delle seguenti affermazioni indica il tuo grado di accordo o disaccordo scegliendo l'opzione che meglio rappresenta la tua opinione. - La campagna ha influenzato il mio giudizio sull'importanza della nutrizione nella scelta degli alimenti.	.942
Per ciascuna delle seguenti affermazioni indica il tuo grado di accordo o disaccordo scegliendo l'opzione che meglio rappresenta la tua opinione. - La campagna ha evidenziato l'importanza di una varietà alimentare nella dieta.	.886

Metodo di estrazione: Analisi dei componenti principali.

a. 1 componenti estratti.

Test di KMO e Bartlett

Misura di Kaiser-Meyer-Olkin di adeguatezza del campionamento.		.920
Test della sfericità di Bartlett	Appross. Chi-quadrato	1461.645
	gl	21
	Sign.	<.001

- Reliability test: DV1

Statistiche di affidabilità

Alpha di Cronbach	Alpha di Cronbach basata su elementi standardizzati	N. di elementi
.965	.965	7

- Factorial analysis: DV2

Varianza totale spiegata

	Autovalori iniziali			Caricamenti somme dei quadrati di estrazione		
Componente	Totale	% di varianza	% cumulativa	Totale	% di varianza	% cumulativa
1	4.077	81.532	81.532	4.077	81.532	81.532
2	.385	7.708	89.240			
3	.233	4.668	93.908			
4	.178	3.561	97.470			
5	.127	2.530	100.000			

Metodo di estrazione: Analisi dei componenti principali.

Comunalità

	Iniziale	Estrazione
Per ciascuna delle seguenti affermazioni indica il tuo grado di accordo o disaccordo scegliendo l'opzione che meglio rappresenta la tua opinione. - La campagna pubblicitaria mi ha sensibilizzato sulle questioni nutrizionali importanti.	1.000	.831
Per ciascuna delle seguenti affermazioni indica il tuo grado di accordo o disaccordo scegliendo l'opzione che meglio rappresenta la tua opinione. - La campagna ha aumentato la mia motivazione a mangiare in modo più salutare.	1.000	.860
Per ciascuna delle seguenti affermazioni indica il tuo grado di accordo o disaccordo scegliendo l'opzione che meglio rappresenta la tua opinione. - Penso che la campagna sia utile per fare scelte alimentari più consapevoli.	1.000	.802
Per ciascuna delle seguenti affermazioni indica il tuo grado di accordo o disaccordo scegliendo l'opzione che meglio rappresenta la tua opinione. - Grazie alle informazioni fornite nella campagna, mi sento più capace di identificare gli alimenti salutari.	1.000	.823
Per ciascuna delle seguenti affermazioni indica il tuo grado di accordo o disaccordo scegliendo l'opzione che meglio rappresenta la tua opinione. - Ritengo di aver migliorato la mia capacità di interpretare le etichette alimentari dopo aver visto la campagna.	1.000	.761

Metodo di estrazione: Analisi dei componenti principali.

Matrice dei componenti[a]

	Componente 1
Per ciascuna delle seguenti affermazioni indica il tuo grado di accordo o disaccordo scegliendo l'opzione che meglio rappresenta la tua opinione. - La campagna pubblicitaria mi ha sensibilizzato sulle questioni nutrizionali importanti.	.912
Per ciascuna delle seguenti affermazioni indica il tuo grado di accordo o disaccordo scegliendo l'opzione che meglio rappresenta la tua opinione. - La campagna ha aumentato la mia motivazione a mangiare in modo più salutare.	.927
Per ciascuna delle seguenti affermazioni indica il tuo grado di accordo o disaccordo scegliendo l'opzione che meglio rappresenta la tua opinione. - Penso che la campagna sia utile per fare scelte alimentari più consapevoli.	.896
Per ciascuna delle seguenti affermazioni indica il tuo grado di accordo o disaccordo scegliendo l'opzione che meglio rappresenta la tua opinione. - Grazie alle informazioni fornite nella campagna, mi sento più capace di identificare gli alimenti salutari.	.907
Per ciascuna delle seguenti affermazioni indica il tuo grado di accordo o disaccordo scegliendo l'opzione che meglio rappresenta la tua opinione. - Ritengo di aver migliorato la mia capacità di interpretare le etichette alimentari dopo aver visto la campagna.	.872

Metodo di estrazione: Analisi dei componenti principali.

a. 1 componenti estratti.

Test di KMO e Bartlett

Misura di Kaiser-Meyer-Olkin di adeguatezza del campionamento.		.874
Test della sfericità di Bartlett	Appross. Chi-quadrato	803.351
	gl	10
	Sign.	<.001

- Reliability test: DV2

Statistiche di affidabilità

Alpha di Cronbach	Alpha di Cronbach basata su elementi standardizzati	N. di elementi
.942	.943	5

- One-Way ANOVA: DV1

Descrittive

DV1

	N	Medio	Deviazione std.	Errore std.	95% di intervallo di confidenza per la media		Minimo	Massimo
					Limite inferiore	Limite superiore		
.00	90	3.1867	1.52752	.16101	2.8667	3.5066	1.00	7.00
1.00	81	5.7012	1.09322	.12147	5.4595	5.9430	2.60	7.00
Totale	171	4.3778	1.83565	.14038	4.1007	4.6549	1.00	7.00

ANOVA

DV1

	Somma dei quadrati	df	Media quadratica	F	Sig.
Tra gruppi	269.562	1	269.562	150.214	<.001
Entro i gruppi	303.274	169	1.795		
Totale	572.836	170			

- One-Way ANOVA: DV2

Descrittive

DV2

	N	Medio	Deviazione std.	Errore std.	95% di intervallo di confidenza per la media		Minimo	Massimo
					Limite inferiore	Limite superiore		
.00	90	3.4175	1.64677	.17359	3.0725	3.7624	1.00	6.86
1.00	81	5.6384	1.15465	.12829	5.3831	5.8938	2.71	7.00
Totale	171	4.4695	1.81222	.13858	4.1959	4.7431	1.00	7.00

ANOVA

DV2

	Somma dei quadrati	df	Media quadratica	F	Sig.
Tra gruppi	210.292	1	210.292	102.121	<.001
Entro i gruppi	348.013	169	2.059		
Totale	558.305	170			

- Two-Way ANOVA: DV1

Statistiche descrittive

Variabile dipendente: DV1

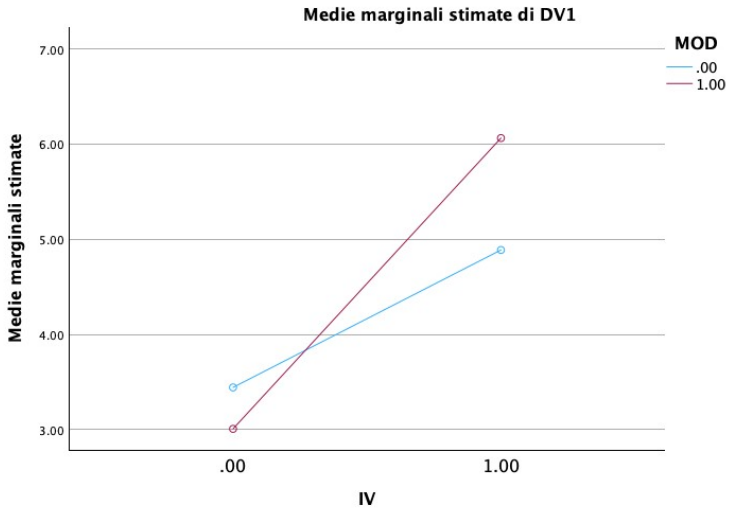
IV	MOD	Medio	Deviazione std.	N
.00	.00	3.4432	1.34010	37
	1.00	3.0075	1.63423	53
	Totale	3.1867	1.52752	90
1.00	.00	4.8880	.72819	25
	1.00	6.0643	1.03545	56
	Totale	5.7012	1.09322	81
Totale	.00	4.0258	1.33379	62
	1.00	4.5780	2.04638	109
	Totale	4.3778	1.83565	171

Test di effetti tra soggetti

Variabile dipendente: DV1

Origine	Somma dei quadrati di tipo III	df	Media quadratica	F	Sig.
Modello corretto	297.613[a]	3	99.204	60.195	<.001
Intercetta	2919.142	1	2919.142	1771.280	<.001
IV	195.307	1	195.307	118.508	<.001
MOD	5.286	1	5.286	3.208	.075
IV * MOD	25.045	1	25.045	15.197	<.001
Errore	275.223	167	1.648		
Totale	3850.040	171			
Totale corretto	572.836	170			

a. R-quadrato = ,520 (R-quadrato adattato = ,511)



- Two-Way ANOVA: DV2

Statistiche descrittive

Variabile dipendente: DV2

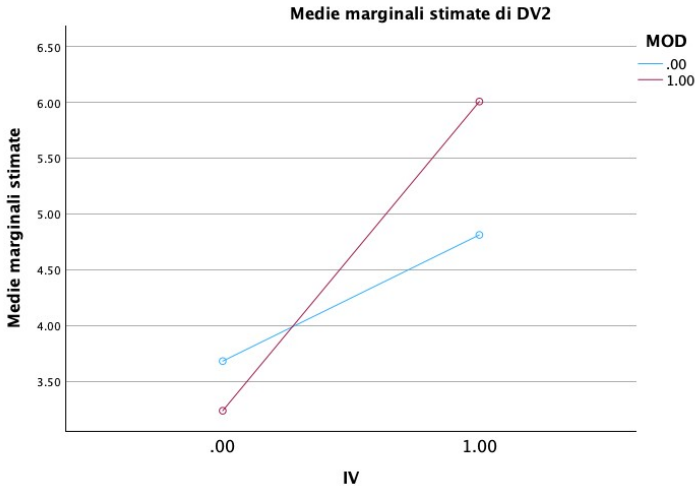
IV	MOD	Medio	Deviazione std.	N
.00	.00	3.6795	1.41638	37
	1.00	3.2345	1.78034	53
	Totale	3.4175	1.64677	90
1.00	.00	4.8114	.95984	25
	1.00	6.0077	1.04284	56
	Totale	5.6384	1.15465	81
Totale	.00	4.1359	1.36373	62
	1.00	4.6592	2.00471	109
	Totale	4.4695	1.81222	171

Test di effetti tra soggetti

Variabile dipendente: DV2

Origine	Somma dei quadrati di tipo III	df	Media quadratica	F	Sig.
Modello corretto	239.340[a]	3	79.780	41.770	<.001
Intercetta	3030.913	1	3030.913	1586.891	<.001
IV	146.979	1	146.979	76.954	<.001
MOD	5.439	1	5.439	2.848	.093
IV * MOD	25.963	1	25.963	13.594	<.001
Errore	318.965	167	1.910		
Totale	3974.286	171			
Totale corretto	558.305	170			

a. R-quadrato = ,429 (R-quadrato adattato = ,418)



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