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"The Power of Unconscious Choices:
An Empirical Analysis of the Influence of Nudges in Participation
in Events"

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INTRODUCTION

In the fields of behavioral sciences and marketing, the deployment of "nudges" and cognitive biases has garnered significant scholarly and practical attention for their potential to subtly influence individual decision-making processes without enforcing direct restrictions or substantially altering underlying economic incentives. Nudges, conceptualized as deliberate interventions designed to steer behavior in predictable directions without curtailing freedom of choice, are increasingly recognized for their utility in enhancing the efficacy of advertising campaigns. These non-coercive tools leverage behavioral insights to shape choices by modifying the context or framing of information, thereby influencing decision-making in a manner that aligns with desired outcomes. This thesis endeavors to investigate the impact of various forms of nudges and cognitive biases on the participation rates of students in events, with a specific emphasis on the end-of-year celebration organized by Luiss Guido Carli University. The primary objective of this research is twofold: Firstly, it aims to rigorously evaluate the effectiveness of targeted nudging strategies—such as choice architecture that subtly guides decision-making pathways, the use of evocative imagery to trigger emotional responses, the creation of a perceived scarcity to enhance the perceived value of participation, and the employment of authority figures, such as celebrities, to leverage social proof and credibility—in fostering higher engagement and participation in publicized events. Secondly, the research seeks to examine the moderating role of individuals' pre-existing familiarity with the event on the efficacy of these nudging interventions. Understanding this moderating effect is crucial, as prior familiarity may either enhance or diminish the influence of nudges depending on the context and the psychological mechanisms at play. The study employs a robust experimental design incorporating four distinct scenarios, each meticulously crafted to isolate and analyze the specific behavioral responses elicited by different nudging strategies. This design allows for a comprehensive examination of students' cognitive and emotional engagement, their expressed intentions, and their actual behaviors in response to varied advertising stimuli. By exploring the intricate dynamics of how nudges and cognitive biases shape behavioral outcomes, this investigation aims to contribute to a more nuanced understanding of strategic communication in the context of event marketing. The findings of this study are expected to offer valuable insights into how nudges can be systematically utilized to optimize advertising strategies within university settings and beyond, providing actionable guidance for marketers and event organizers seeking to effectively influence target audiences and achieve desired behavioral objectives. Ultimately, the research aspires to bridge the gap between theoretical knowledge and practical application, demonstrating how behavioral science principles can be harnessed to drive more effective and impactful marketing campaigns.

CHAPTER 1: Behavioral Economics Applied to Marketing

“Behavioral economics is ... no new thing. Alfred Marshall of Industry and Trade could well have labeled himself a behavioralist. And, of course, behavioral economics can claim John R. Commons, Thorsten Veblen, Joseph Schumpeter, George Katona, and many other distinguished economists of past and recent generations.”

Herbert Simon, (1986, p. xvi)

1.1 Key concepts of behavioral economics

Behavioral economics blends insights from psychology with economic theory to provide a richer understanding of human behavior in economics. This interdisciplinary approach challenges the conventional wisdom of classical economics, which assumes that individuals make rational decisions with perfect information. Instead, behavioral economics recognizes the complexity of human behavior, incorporating factors such as cognitive biases, emotions and social influences. This nuanced perspective is particularly valuable in marketing, where understanding the complexities of consumer behavior can lead to more effective marketing strategies.

Behavioral economics fundamentally challenges the classical economic model of the rational agent by introducing a more realistic representation of human decision making, through cognitive psychology¹ to understand economic decisions and understand how these are reflected in markets, prices and resource allocation.

Behavioral economics is a sub-discipline of economics that integrates insights from psychology with traditional economic theories to provide a more accurate understanding of human decision-making behavior, particularly in contexts of uncertainty and under constraints of bounded rationality. Unlike classical economics, which assumes that individuals are perfectly rational agents aiming to maximize utility, behavioral economics recognizes that individuals are often irrational in predictable ways.

¹ *cognitive psychology: is a branch of psychology that studies how our brains make decisions based on the inputs they receive*

1.1.1 Definition and foundations

The designation “behavioral economics” was adopted as early as 1958, as evidenced by earlier works (Johnson 1958; Boulding [1958] 1961, p. 21). In the prevailing modern understanding, the term “behavioral economics” refers to the approach aimed at increasing the explanatory and predictive capabilities of economic theory through the integration of more plausible psychological assumptions (Camerer and Loewenstein 2003, p. 3; cf. Weber and Dawes 2005, p. 91). It is important to emphasize that behavioral economics as thus delineated departs significantly from behaviorism; rather, its historical roots lie in cognitive psychology, which developed in sharp contrast to behaviorism. The adjective “behavioral” sometimes elicits criticism for its alleged redundancy, arguing that the entire discipline of economics is, or should be, focused on human behavior. However, this label originates from behavioral economics' particular emphasis on researching decision-making dynamics. Although behavioral economists acknowledge the important contributions of other disciplines such as sociology and anthropology, much of the contemporary research labeled “behavioral economics” draws inspiration primarily from psychology.

At the same time, a distinct subfield, sometimes referred to as “socioeconomics,” has emerged that builds on the contributions of sociology and has consolidated around a diverse set of researchers and publications.

Behavioral economics expands the domain of economics by incorporating a more detailed understanding of human psychology. This discipline moves away from the traditional model of homo economicus², characterized by perfect rationality, to include the analysis of the decision-making behavior of real human beings. This approach accepts the principle that human behavior is modulated by a variety of influences that can generate seemingly non-rational decisions, such as emotions, cognitive biases and social conditioning. This breadth of vision allows economists and marketers to more effectively anticipate and decipher the behavioral dynamics of consumers in markets.

The essence of behavioral economics is manifested in the incorporation of psychological insights into economic models, thus enriching the representation of human behavior through the analysis of such elements as cognitive biases, emotional decision making and social norms (Camerer & Loewenstein, 2003). According to the conventional paradigm in economics, humans are considered rational agents capable of processing all available information to make choices that maximize their own welfare. However, it is common for actual decisions to deviate from this ideal, influenced as they are by incomplete or contradictory information and emotional factors. Often, when faced with complex

² *The figure of homo economicus is fundamental to microeconomics, which examines the behavior and choices of economic agents. These agents are called upon to choose from numerous options, guided by their own tastes and preferences.*

decisions, individuals fail to fully evaluate the advantages and disadvantages of each alternative, resulting in a tendency to make decisions guided by emotions and instinct. This interest in the psychological dynamics underlying economic decisions has stimulated some economists to explore these phenomena further. This chapter aims to examine the evolution of economic thinking that has led to the emergence of behavioral economics, highlighting how this discipline integrates economic principles with psychological insights to provide a more accurate description of human behavior in the decision-making context. To delineate behavioral economics, it is essential to explore some of its core concepts, which we will then address specifically below:

- *Limited Rationality*: Individuals possess a restricted capacity to process all available information and as a result often fail to reach the optimal decision. They are subject to psychological and emotional influences that can result in suboptimal choices.

It is a condition in which individuals are able to make decisions only partially rationally because of limitations in available information, processing time, and cognitive abilities themselves. This term was introduced by social scientist Herbert A. Simon, who pointed out that, in reality, human beings tend to operate under information and processing constraints that make only “satisfactory” rather than “optimal” decisions optimal.

- *Heuristics*: Cognitive mechanisms that act as shortcuts in decision making. Although they facilitate decision making, they can also induce systematic bias or bias (explanation below). They function as mental algorithms that simplify data processing through the use of approximate strategies that do not guarantee the optimality of the choice, but increase its time efficiency and economy of cognitive effort.

- *Cognitive Biases*: Systematic inclinations to make decisions in ways that deviate from rational logic. These cognitive-behavioral biases result from modes of thinking that, although often effective and useful in certain circumstances, can lead to judgments or decisions that are erroneous with respect to an ideal model of perfect rationality. They affect a wide range of human activities, from economic decisions to social interactions.

- *Prospect Theory*: Developed by Daniel Kahneman and Amos Tversky in 1979, this theory constitutes a descriptive model of decision making under uncertainty, highlighting how individuals do not act according to the principle of maximizing expected utility, as predicted by traditional expected utility theory. According to Prospect Theory, decisions are made based on a subjective assessment of potential losses and gains, relative to a specific reference point, rather than in absolutes. Prospect Theory has had a significant impact not only on economic psychology, but also precisely on disciplines such as marketing, offering a theoretical framework for better understanding and predicting human decisions under uncertainty.

1.1.2 Historical evolution

The history of economic thought has very ancient origins dating back to Greek times and Aristotelian doctrine. Over time, the succession of historical events, leading to great changes and human cultural evolution, has led to the variation of economic perspectives and their consequent progress. The evolution of behavioral economics represents a significant change in the understanding of economic theory and practice. Initially, economics was largely based on the assumption that individuals acted rationally and possessed complete information. However, empirical evidence and psychological research have increasingly challenged these assumptions, highlighting the complexity of human decision making. Behavioral economics has its roots in the work of pioneers who recognized the importance of psychological factors in economic decisions. Indeed, the origins of behavioral economics can be traced to the works of Adam Smith, who in the 18th century explored the impact of emotions on economic decisions, especially in “The Theory of Moral Sentiments” (1759). It is here that Smith proposes that despite a natural inclination toward selfishness, human beings are influenced by emotional impulses. According to Smith, at the core of human behavior is a feeling of sympathy that facilitates empathy with others. This ability to empathize leads individuals to approve of behaviors that reflect their own and to disapprove of those that diverge from their personal standards. And society thus arises from a continuous process of “accommodation,” aimed at achieving social and economic equilibrium: knowing one's preferences, each individual seeks to maximize his or her own well-being and in this way indirectly maximizes social well-being as well, as if there were an invisible hand pushing individual interest toward collective interest.

He observed that despite a natural predisposition to selfishness, humans are capable of behaviors guided by sympathy and empathy toward others (Smith, 1759). This discipline has gradually acquired a formal structure with the development of theoretical models that incorporate human cognitive imperfections.

During the 20th century, figures such as Herbert A. Simon introduced revolutionary concepts such as “bounded rationality,” indicating that human decisions are often marked by sub-optimality due to informational and cognitive limitations. According to his theory, individuals, faced with cognitive and information limitations, tend to make only sufficiently good rather than optimal decisions (Simon, 1955). A turning point in the field was the introduction of prospect theory by Daniel Kahneman and Amos Tversky in the 1970s. This theory illustrates how people evaluate losses and gains differently depending on how options are presented, leading to choices that can deviate significantly from economic rationality (Kahneman & Tversky, 1979). This work has highlighted numerous cognitive biases that systematically influence decision-making behavior.

Kahneman and Tversky's Prospect Theory was an innovative development that introduced concepts such as loss aversion and the framing effect, which have profound implications for understanding consumer behavior. The use of behavioral economics in economic policy gained ground in the 1980s and 1990s, with economists such as Richard Thaler exploring how small nudges, or “nudges,” can improve economic decisions without forcing behavior (Thaler & Sunstein, 2008). This historical journey from a purely rational model to one that embraces the complexities of human psychology underscores the dynamic nature of the field and its relevance to contemporary economic and marketing strategies ([Nagatsu, 2015]; [Thaler, 2016]).

Formal recognition of the importance of behavioral economics was enshrined with the awarding of the Nobel Prize in Economics to Kahneman in 2002 and to Thaler in 2017. These awards validated the behavioral approach in economic analysis and stimulated further research and applications in the field.

1.2 Fundamental theories

As previously mentioned, the development of behavioral economics is rooted in the critique and expansion of classical and neoclassical economic theories. The forerunners of this field, including Herbert A. Simon, introduced the concept of “bounded rationality,” challenging the assumption of a perfectly rational decision maker proposed by traditional economic theory. Subsequently, the “prospect theory” developed by Daniel Kahneman and Amos Tversky led to a profound methodological revision in the field, highlighting how individuals attribute different values to gains and losses, diverging significantly from expected utility theory. This section explores these theories and other fundamental notions that have shaped behavioral economics, highlighting their importance in the context of marketing through the analysis of consumer behavior. ([Nagatsu, 2015]; [Thaler, 2016]). Some economic historians have drawn a sharp distinction between the “old” and the “new” behavioral economics. The new current is distinguished by a more harmonious integration with the principles of neoclassical economics, such as traditional rationality as the normative foundation, and has achieved a mainstream acceptance that had not been achieved by previous streams of research in behavioral economics (Sent, 2004). Moreover, the “old” behavioral economics does not represent a homogeneous paradigm, but rather a conglomerate of different research programs that developed in different periods. Prominent among them is Herbert Simon's program, inaugurated in the 1950s at Carnegie Mellon University. Equally significant was the initiative of George Katona at the University of Michigan, who used the term “behavioral economics” as early as 1947 (Juster 2004, p. 120) Schwartz (2002, p. 181) believes that Simon “provided the starting point for behavioral economics,” and for Curtin (2016, p. 18) “Katona rightly deserves recognition as the founding father of behavioral economics.”

1.2.1 The old behavioral economics: Simon, Katona, and Festinger

In the course of this analysis, we will explore the significant contributions of two key figures in the field of behavioral economics: Herbert A. Simon and George Katona, along with the theoretical insight of cognitive dissonance, developed by Leon Festinger.

- **Bounded rationality, Simon**

One of the first scholars who criticized and challenged the homo economicus concept of perfect rationality was the American economist and psychologist Herbert Alexander Simon. Regarded as one of the pioneers of behavioral economics, H.A. Simon in 1955, with his article “A Behavioral Model of Rational Choice,” attempted to explicitly include human psychological elements in the theory of economic rationality by introducing the concept of bounded rationality. According to Simon, human behavior should not only be analyzed based on the results obtained from the decisions made but it is also appropriate to study the ways in which such choices are made and from which the related behaviors are derived; in cognitive terms, man is a limited information processor, that is, he is an intentionally rational subject but who, due to the presence of certain limiting factors such as the small set of information and the restricted time of processing the same on which to base his choice or such as the cognitive level of the individual, often makes impulsive and instinctive choices.

Simon thus draws attention to human cognitive limitations of information processing, which are closely related to:

- Limited attention and limited time available for decision making;
- Memory, related to problems of quantity, accuracy and speed, but also of information accumulation, retention and retrieval;
- Comprehension, related to problems of organization and the ability to connect information.

In other words, the rationality of decision makers is thus limited because of the reduced information available to them and the cognitive limitations they have. Simon thus suggests replacing the figure of the homo economicus, a perfectly rational subject moving in an objective context, with the figure of the administrative man, i.e., an only limitedly rational subject moving in a subjective context characterized by his own perceptions of the real world; he is thus a subject who, being aware that he has a limited processor, uses and administers a series of strategies in order to arrive at choices. Contesting the theory of optimal choice, Simon introduces the principle of satisfactory choice, which turns out to be a strongly contrasting element with traditional economic theory.

In the neoclassical view, in fact, a choice is optimal if, comparing all alternatives, one adopts the one preferred over the others, that is, the one that maximizes utility, given a certain economic availability. In Simon's model, on the other hand, one does not compare all possible alternatives but only those of minimum satisfaction and, among these, chooses the most satisfactory option, that is, the one that

reaches or exceeds the minimum level of satisfaction. According to the author, therefore, the decision maker does not choose the optimum but rather the alternative that guarantees him a minimum acceptable level, a measure that is identified and evaluated by the decision maker himself. The principle of satisfaction turns out to be opposed to that of Paretian efficiency since, the moment the basic search is satisfied, there is no need to continue searching for further alternatives and to identify the optimal choice but, nevertheless, the search can be closed when satisfaction is achieved. Thus, a clear separation is created between the perfect rationality of homo economicus and the limited rationality of administrative man. However, like all cognitivist psychologists, Simon also regards man as if he were a machine, a computer. In reality, however, there are not only elements of rationality in the decision-making process, but the final choice is the result of psychological, social and emotional processes.

Arguing precisely that individuals are limited by the information they possess, the cognitive limits of their minds, and the limited amount of time they have to make decisions. This leads to satisfaction, a process of seeking a satisfactory solution rather than the optimal one. Simon's work laid the foundation for understanding decision-making processes within the limits of human cognitive capacity. Simon openly criticized economists for attributing excessively omniscient economic rationality to individuals, while also challenging the tendency of some psychologists, followers of Freud, to reduce all knowledge to emotion. He identified two critical premises: the a priori existence of human goals and motivations in the utility function and the consumer's inclination to choose alternatives that maximize utility. Simon argued that the commitment of behavioral economics should not be limited to adherence to a predefined theory, but rather to empirical testing of neoclassical assumptions about human behavior, with the goal of revising economic theory on the basis of the results obtained. He argues that neoclassical models fail to accurately describe human decision-making behavior, attributing this failure to a number of cognitive limitations and proposing the term "bounded rationality" to refer to the knowledge and choice restrictions that prevent individuals from adhering to the principles of neoclassical theory.

Drawing a conclusion about Simon's thinking, he argues that an individual tends to choose the best possible option but knows that it is not the best in an absolute sense: he will be content and will have made a choice that is not optimal, but satisfactory. That is, one will try, more than anything else, to arrive at a choice of an acceptable level in comparison with the desired outcome. So, utility maximization will not be sought at all costs, but a surpassing of a minimum level of utility deemed acceptable. Moreover, the individual will not seek solutions endlessly, examining all possible choices, but will stop when he has reached his minimum level of satisfaction.

- **Katona**

"Economics without psychology is incapable of explaining important economic processes, just as psychology without economics is unable to shed light on some of the most common aspects of human behavior". (Katona, 1951, p.9 in Hosseini, 2011, p.979).

G. Katona argues the need to integrate economic and psychological considerations. According to Katona, economic analyses aimed at identifying invariable laws have systematically neglected or simplified psychological variables:

"... Often starting from the premise that men behave mechanically. But if it were true that human beings always react in the same way to the same economic developments as the environment in which they live, then the human factor could be completely excluded from these studies. If human beings behaved like automatons, that is, they reacted in the same way to the same stimuli, we could easily do without psychology".

According to Katona, consumer reactions to economic stimuli can be explained and predicted. In particular, he attaches great importance to the notion of "expectation" to explain consumer behavior. This notion can be used to predict future consumption behavior and as an indicator of economic performance. George Katona is recognized as a precursor in the domain of behavioral economics. His body of research has contributed significantly to the understanding of how consumer behavioral attitudes affect the global economic architecture.

He postulated that economic choices are not invariably guided by logic of rationality or exclusively objective calculations. Rather, he emphasized the determining role of psychological variables such as expectations, emotional states, and cognitions from past experiences in shaping individuals' economic decisions. It introduced the claim that future economic projections of consumers may have a direct influence on their consumption and accumulation strategies, thus affecting the macroeconomics. In addition to her theories, Katona has brought methodological innovations in the field of behavioral economics, especially through the development of surveys and survey methods aimed at quantifying consumer expectations and sentiment. These methodological tools have facilitated the acquisition of empirical data relating to psychological elements that modulate economic conduct, thus facilitating more complex and detailed analyses in this field of study. Within the broader framework of behavioral economics, Katona's work has laid the foundation for future investigations into how perceptions, expectations, and other psychological components influence

economic decisions, from the individual to market collectives. His interdisciplinary approach, which integrates psychology into economic analysis, has inspired generations of economists and psychologists to explore the complex interaction between mental processes and market dynamics.

- **Cognitive dissonance, Festinger**

The concept of cognitive dissonance, introduced by Leon Festinger, describes the psychological conflict that emerges when individuals are faced with contradictory beliefs, attitudes or behaviors. This cognitive tension motivates people to change their beliefs or actions in order to decrease perceived dissonance. In the field of marketing, understanding cognitive dissonance is crucial to formulating effective strategies that align or modulate consumer perceptions and attitudes towards specific products or brands. Festinger noted that individuals, when confronted with choices that contradict their prejudices, tend to restructure their cognitive scheme to make their decisions congruent with their existing belief system. This adaptation does not necessarily involve a modification of the decision itself, but rather an adjustment of the rationalizations and beliefs that support it. Internal cognitive coherence is crucial in regulating human behavior; a person achieves an optimal emotional state when his values and attitudes are synchronized and form a harmonious system that tends to maintain a state of balance or "cognitive consonance".

However, in some situations, the decision maker may be forced to operate inconsistently with their own values and beliefs, which leads to an increase in cognitive dissonance resulting from opposing and divergent actions. This concept is essential to transcend the behavioral model, based on a simple stimulus-response dynamic, towards a psychological approach that integrates the context of everyday life. The theory in question aims to explain the different human reactions that manifest when individuals process conflicting thoughts, emphasizing that, in such circumstances, human beings tend to make opportunistic decisions, often at odds with their core values. Inconsistency between beliefs causes significant psychological discomfort. Faced with this, the individual, in an attempt to justify seemingly contradictory behavior and reduce dissonance to restore cognitive coherence, will adopt mental strategies by modifying their initial thoughts. This process does not imply a revision of the decision taken, but an adaptation of the thought and ideas in support of this decision, to maintain consistency with it. Cognitive dissonance is, therefore, a phenomenon that occurs after decision making and frequently manifests itself in post-purchase contexts. The theory operates according to a

"principle of reality": the greater the detachment of a cognition from reality, the easier it can be modified.

Since a purchase is a concrete and irreversible behavior, the knowledge most likely to change will be those relating to the satisfaction of the chosen product compared to those not selected. Dissonance increases with the importance of cognition and the increase in resources, such as time and money, invested in purchasing. For example, a consumer is more likely to experience intense cognitive dissonance in buying a car than buying an ice cream. The most representative example of a situation of cognitive dissonance is the famous tale "*the fox and the grape*", taken from the fables of Aesop.³The magnitude of cognitive dissonance is influenced by the relevance of the issue on which the decision is based and by individual interest in the excluded alternative. Moreover, greater dissonance is matched by a greater need to work to mitigate it and to avoid circumstances that could intensify it. The factors that induce cognitive dissonance are typically post-decision-making and stem from logical inconsistencies and contradictions between cultural norms and previous personal experiences.

To attenuate or eliminate cognitive dissonance, Festinger proposes three possible strategies:

- Modify your dissonant behavior to align it with other cognitions.
- Altering the environment by selectively including new information.
- Restructure your cognitive scheme by modifying ideas, opinions and internal relationships.

These strategies may lead to a renewed appreciation of the alternative chosen, although dissonance may persist if the decision maker finds it difficult to change his behavior and belief system. In addition, dissonance can emerge from situations of forced compliance, where the decision maker is driven by external factors or other people to behave inconsistently with their beliefs, resulting in a "forced acquiescence" which only superficially alters the attitude without changing the underlying values. According to Festinger, in order to minimize dissonance and facilitate acquiescence, it can be effective to offer a reward, with more significant attitude changes resulting in smaller rewards rather than greater. Cognitive dissonance, being a post-decision phenomenon, is particularly relevant in post-purchase contexts. Operating according to a "principle of reality", knowledge less rooted in reality is more susceptible to change, especially those related to the satisfaction of purchased products

³ *This tale tells the story of a hungry fox who, seeing bunches of grapes hanging from a vine, tried to grab them without succeeding and, walking away, said that the grape was unripe. The dissonance between what he desires and his inability to obtain it leads the fox to the conclusion that the grape is unripe. In the same way therefore, failing in their intent, men also blame the circumstances.*

than those not selected. The importance of knowledge and the investment of time and money influence the intensity of dissonance, as shown by the case of a consumer who experiences a sharper dissonance buying a car rather than an ice cream. In conclusion, cognitive dissonance is a frequently employed behavioral change mechanism, which can help mitigate the weight of decisions. However, it is crucial that the individual is aware of their own behavior to effectively resolve cognitive inconsistencies.

1.2.2 The new behavioral economy

The "New Behavioral Economics" designates an interdisciplinary field of research that merges psychological theories with economic principles in order to elucidate individual economic decisions. This approach challenges the traditional assumption in economics that individuals act as perfectly rational entities aimed at maximizing utility. Enriching fundamental economic theories with recent discoveries in psychology and through experimentation, the new behavioral economics examines the influence of mental heuristics and emotional reactions on economic decisions, ranging from individual buying behaviour to market trends. This branch of the economy reveals how the presentation of information can change choices, investigating the repercussions of phenomena such as endowment effect and hyperbolic discounting. The assimilation of such psychological concepts in economic analysis has greatly improved the ability to predict and understand real behaviors in economic contexts. The new behavioural economy has had a significant impact in several areas, contributing to the design of more effective interventions, based on real behaviours rather than exclusively rational models.

- **Prospect Theory of Kahneman & Tversky 1979**

In the mid-20th century, the paradigm of unlimited rationality began to manifest obvious vulnerabilities. Researchers identified the cognitive restrictions of humans in the process of evaluating and processing information, pointing out that decisions did not necessarily stem from an

optimization mechanism. The emergence of behavioral economics was stimulated by the need to integrate economic theories with the empirical evidence of psychology in order to fill the gaps in the concept of rationality. A crucial event in the development of this discipline was the contribution of Daniel Kahneman and Amos Tversky, with the publication in 1979 of their work "Prospect Theory: Decision Making Under Risk". In this study, they applied the principles of cognitive psychology to analyze various anomalies found in rational economic decision-making. The Prospect Theory turned out to be a synthesis of the investigations on cognitive psychology conducted by the two authors, who significantly questioned the validity of the rational choice model, going beyond the theories previously proposed by Herbert Simon. The empirical research carried out by Kahneman and Tversky has revealed a fundamental insight into human psychology: individuals tend to base their decisions on a limited set of heuristics, or cognitive shortcuts, which simplify decision making.

These heuristics, together with cognitive biases-systematic biases of judgment that emerge under conditions of uncertainty-compromise the use of rationality in decisions. The recognition of the importance of these contributions was sealed in 2002 with the award of the Nobel Prize in Economics to Daniel Kahneman, for his innovative work in applying the results of psychological research to economic science. Prospectus Theory is a crucial component in the development of behavioral economics, investigating the mechanisms by which humans make choices in diverse contexts, particularly in situations of uncertainty. This theoretical model deviates from traditional economic conceptions, highlighting behaviours that, although irrational, are systematically predictable. Contrary to classical economic theories, which set ideal normative criteria for defining a decision as "rational", Prospectus Theory offers an empirical description of the actual behavior of individuals faced with decision dilemmas. The specific focus of this theory is on decisions made under risk conditions, where the probabilities associated with the different possible outcomes of each alternative are known or can be estimated. This theoretical view holds that individuals discriminate against losses from gains, influencing a decision-making process that deviates significantly from the predictions of neoclassical economic theory. It introduces fundamental concepts such as loss aversion and framing effects, which play a significant role in marketing strategies, particularly in the presentation of products and services to consumers. Kahneman and Tversky's 1979 fundamental article laid the groundwork for these discoveries, proposing a paradigm shift in the analysis of economic behavior through a behavioral perspective. Their research questioned the traditional premises of economic rationality and provided empirical support for the analysis of the impact of cognitive bias and psychological processes on economic decisions, offering relevant implications for practical applications in marketing and economic policy formulation. With Prospectus Theory, Kahneman and Tversky identified that individuals attribute values related to gains and losses, rather than absolute

wealth, and that decision weights are differentiated according to the probability of outcomes. In the positive context of the value function, a clear aversion to losses emerges. In scenarios with possible negative outcomes, instead, a "Reflection Effect" occurs where the individual reverses his preferences, evaluating lotteries based solely on the final state of wealth rather than the potential loss. This reversal of preference in the negative domain suggests that, if an individual is risk-averse in earning contexts, he may tend to risk in loss scenarios, contradicting the neoclassical normative theory of John von Neumann⁴ that postulates the independence of preferences in the positive and negative domains.

Prospectus Theory distinguishes two phases of the selection process:

1. **Editing:** "Phase editing" is the initial phase of the selection process and consists in the reorganization and reformulation of the problem that the individual is facing, through the cognitive filters analyzed in the previous chapter. In this way, the individual is able to formulate a timely response to the problem, in light of the biological limits of the cognitive system. It is at this stage of the process that some of the anomalies and inconsistencies in the choices of individuals arise, due to the fact that this phase strongly depends on the way in which the problem is presented and formulated. In practice, a reference point is defined (condition at the time of decision or benchmark to be reached); all possible alternatives are considered on the basis of gain or loss with respect to it (results worse than the reference are losses and higher results represent gains). Due to time constraints, knowledge and processing capabilities, these values are approximations, so when subjects do not have the ability to resort to precise algorithms, heuristics are used. Results that are considered equivalent are aggregated to simplify the next step. The editing process includes four phases: the encoding and the combination of probabilities, where the probabilities of identical outcomes in different prospects are aggregated and evaluated as a single result. Furthermore, there is segregation, where the risk-free components of a prospectus are separated from the risky components and finally, the cancellation, resulting from the isolatory effect: the common elements between different bets are eliminated, allowing the decision maker to focus on the relevant differences. This helps to simplify the choice between dominant and dominated prospects.
2. **Evaluation:** Once the editing phase is finished, the second phase begins, less expensive in terms of effort for the individual, which concerns the evaluation of alternatives and the final decision. To arrive at the decision, the individual will rely on the value of each alternative

⁴ *John von Neumann was a Hungarian mathematician and scientist. Born in 1903, he is particularly known for his contribution to game theory, a branch of mathematical economics that analyzes the behavior of individuals in competitive situations where the success of each participant also depends on the actions of others.*

simplified by the previous stage, protecting for the prospectus can offer the most satisfactory performance. Simplified versions of the prospectuses that emerge from the editing phase are evaluated and the one with the highest value is chosen. At these stage two functions are used:

- **Weighting function, Weighting of probabilities:** people tend to overreact to events with small probabilities but react less in the case of large probabilities. This means that unlikely outcomes are overestimated compared to the certainty of not getting them and very likely outcomes are underestimated compared to the certainty of getting them. The weighting function, $\pi(\cdot)$, represents the weight attributed to the value of each outcome. The weighting function is increasing in p where impossible results are ignored and $\pi(p)$ represents the ratio of the weight associated with probability p to the weight associated with a given event. The slope of π can be seen as a measure of the sensitivity of preferences to probability changes. (Kahneman & Tversky, 1979). The main property of the weighting function is that for small odds it is subadditive, while for large odds it is not always. This suggests that people overweigh the odds for rare events versus the certainty of not getting them.

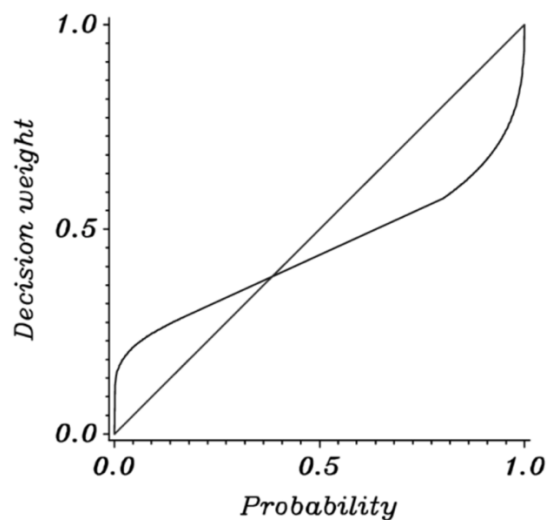


Figure n.1: Weighting function

- **Value function:** is defined on the changes in benefits relative to the reference point. It's steeper in the area of loss than in the area of gain (more effort to escape loss than to seek gain). The value function, $v(\cdot)$, gives the outcomes of a game a value for the individual. In particular, it measures the value that a change of state produced by the occurrence of a certain

outcome assumes for the individual.⁵ In other words, the value function quantifies the deviation of the outcome from the established reference point, rather than the absolute level of wealth reached.

The main features of the value function are as follows:

- The function is defined in terms of variations, both positive and negative, that the outcome of a decision leads to a predefined reference point;
- In the earnings domain, the value function is concave, indicating a decreasing sensitivity to gains as they increase;
- In the loss domain, the function is convex and has a more pronounced slope than the gain domain, in particular it is very steep close to the reference point, reflecting the significant aversion to losses.

Kahneman and Tversky described the form of this value function:

$$V(x) = \begin{cases} x^\alpha & \text{se } x \geq 0 \\ -\gamma(-x)^\beta & \text{se } x < 0 \end{cases}$$

where γ is the risk aversion coefficient. According to their estimates, the values of the coefficients are $\gamma = 2.25$ and $\alpha = \beta = 0.88$.

It is important to recognize that this representation is a simplification of reality, an aspect of which Kahneman and Tversky themselves were aware. They pointed out that the value attributed to a given outcome is not only influenced by the magnitude of the gain or loss relative to the reference point but is also conditioned by the choice of the reference point itself.

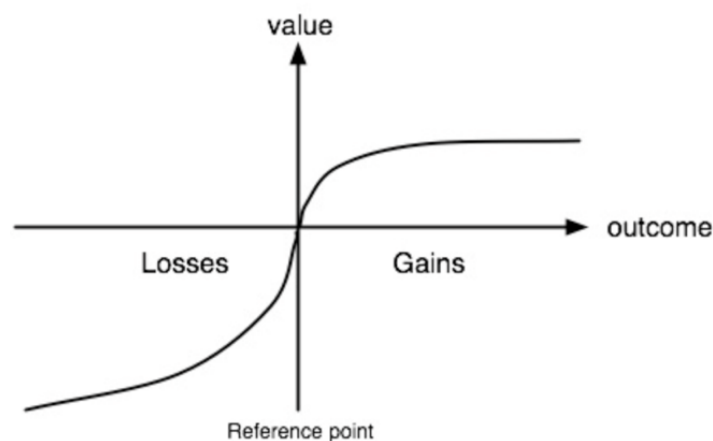


Figure n 2: Value Function

⁵ Rumiati, R. and N. Bonini (2001), *Psychology of decision*, Il Mulino

The morphology of the value function, characterized by a concavity in the gain domain and a convexity with a greater inclination in the loss domain, is confirmed by the empirical evidence previously discussed. In summary, people judge small changes of greater value when the absolute value is lower and vice versa. Moreover, reactions to value increases differ substantially from reactions to value reductions, even when they are quantitative equivalent. This phenomenon is illustrated by the possession effect (known as endowment effect), discussed in the first chapter. The concave form of the value function in the earnings domain indicates that gain increases produce a greater impact at lower wealth levels. For example, the perception of a difference between a gain of €1,000 and a gain of €1,500 is more significant than the difference between a gain of €50,000 and a gain of €50,500: The same increase in wealth is estimated as more substantial by an individual at low levels of wealth than one with an already high initial wealth. Similarly, the convexity of the function in the loss domain suggests symmetric behavior for value reductions. In summary, the marginal value of gains or losses decreases as their size increases. Consequently, it is incorrect to claim that individuals are constantly prone to or risk averse; rather, they exhibit both of these trends depending on the specific context. In particular, risk-averse attitudes prevail within the profit domain, while in the loss domain there is increased risk-taking. These observations were confirmed by various empirical tests.

- **Decision-making systems of Kahneman**

Kahneman also introduces the concept of operating systems of the mind, which govern all decisions and never work simultaneously:

- **System 1**, also known as the "implicit system" or "intuitive system", comes into operation quickly when the brain acts automatically quickly, without mental effort. It is an unconscious and primitive mechanism, that is linked to the oldest part of the brain that unites man to the animal world, based on the association between stimuli, and is linked to the emotional and experiential sphere of man. It is much more powerful than we ourselves are aware of. It works quickly and automatically, with little or no effort and virtually no voluntary control.

-System 2, also known as the "explicit system" or "reflexive system", is more rational and conscious and deals with more demanding mental activities that require more attention. It is a slow process that requires more or less extensive mental effort and, for this reason, cannot analyze more information at the same time. It is an evolved and typically human mechanism, based on logic and explicit processing of information; allows a conscious management of thoughts and actions but also requires a large amount of resources and time that guide man to a not immediate response. This, however, also applies the law of minimum effort, that is, it relies on System 1, when it understands that it is a task easily executable by the latter, to make its decisions. It is activated when we encounter mental activities that require focus and concentration.

Daniel Kahneman identified two distinct systems of thought that characterize human decision-making: System 1, which is rapid, intuitive and emotional, and System 2, which is slower, deliberative and logical. This distinction provides an essential framework for analysing the duality of decision making, particularly relevant for marketers who aim to influence consumer behavior by exploiting both the intuitive and rational aspects of decisions. To understand decision making in depth, it is crucial to examine the psychological mechanisms that regulate the cognitive functions of the human being. The human mind can behave incoherently; such inconsistencies have been explained through the development of theories about dual thought processes, which reveal the existence of two different cognitive systems: one automatic and impulsive and the other reflective and rational, both fundamental in governing human decisions. Contrasting with the neoclassical model, which envisions homo economicus as an agent operating exclusively through the reflective system to maximize rational choices, The real behavior of individuals often reflects instinctive and quick responses provided by System 1, without the lengthy processing time typical of System 2.

However, the two systems do not operate in isolation but in dynamic interaction; the Reflexive System frequently relies on the intuitive capabilities of System 1, especially in situations requiring less cognitive effort. These interactions allow experiences and memories to influence immediate decisions, while tasks requiring more attention and concentration activate System 2. In addition, the flow of data and stimuli from the intuitive system can, with repetition and deliberate management, become part of the automatic responses of System 2, thus demonstrating the complex interaction between the two systems in decision making. We can therefore say that normally the human being acts according to his memory and experience but this, in some cases, can lead to errors. This may be justified by the fact that, unlike System 2 which is linked to conscious thinking, System 1 is related to visceral reactions which, while being quite precise, often lead to mistakes because of the great

confidence placed in the intuitive mechanism. (Thaler R.H., Sunstein C.R. (2008)), The automatisms used by the implicit system to obtain immediate answers are called "heuristics", mental shortcuts very useful for the simplification of problems but which can cause errors of perception, defined "cognitive bias". It is these two concepts that will be discussed specifically in the next paragraph.

1.3 Heuristics and behavioural bias

Behavioral economics studies the impact of heuristics - simple and efficient rules that people often use to make judgments and decisions - and prejudices, such as over-confidence, anchoring, and availability bias. These concepts reveal the shortcuts and errors of judgment that can lead to poor economic decisions. In the behavioral economy related to the world of marketing the understanding of these prejudices and heuristics opens the way to messages and products in line with natural human trends, thus improving the effectiveness of campaigns, advertising and not. Behavioral economics provides a deep understanding of the complexities of human decision making, providing tools and frameworks that are valuable to both economists and marketing experts. There are several psychological factors that influence economic behavior, among them we analyze the concept behind the terms that have been mentioned several times and that will come back below: Heuristics and Bias.

HEURISTICS

Heuristics (from the Greek *heurískein* "find") are skills acquired by the brain in the course of evolution. As already mentioned, these have been extensively studied by Israeli economists and psychologists Amos Tversky and Daniel Kahneman who, in their 1974 article "Judgment under Uncertainty: Heuristics and Biases" tried to understand human decision-making in conditions of uncertainty and lack of information. They were introduced by the two economists and would consist of the real tools used by system 1 (also introduced by Kahneman) to make decisions. There are many definitions of heuristics. Kahneman and Frederick (2002) proposed that a heuristic assigns a destination attribute from another property/representation (attribute substitution) that is easier to think of, with a huge reduction in mental strain. But the synthesis of a myriad of definitions can be found in the following:

"A heuristic is a strategy that ignores part of the information, with the aim of making decisions more quickly, simply and/or accurately than more complex methods".

In fact, they are intuitive and fast mental processes that give the ability to generate a generic idea without having to support excessive cognitive effort. These are strategic shortcuts that quickly lead to conclusions. Kahneman and Frederick, theorized that these heuristics acted by a means called attribute substitution, which occurs unconsciously. Based on this theory, when a subject expresses a

complex judgment from a deductive point of view, it is automatically replaced by a heuristic that has a simplified meaning but inherent in the context itself.

"Heuristics are, therefore, mental tricks that lead to quick conclusions with minimal cognitive effort".⁶

Heuristic reasoning does not accompany "man towards rigorous and finite results but often provisional and plausible, whose goal is to discover the solution of a problem. This reasoning leads to first conjectures and attempts to understand the solution process and often represents a useful mental process with simplifying attributes. Between the 1960s and 1970s, economists Amos Tversky and Daniel Kahneman, questioning the descriptive adequacy of the ideal models of judgment of time have offered a "cognitive alternative capable of explaining human errors without necessarily invoking the "irrationality of individuals. While useful, they often lead to systematic errors known as cognitive biases: divergences from rational theory that serve as indices of underlying heuristics. As analyzed above, the human being is daily in situations of uncertainty and having to decide on the basis of unclear information; if to this are also added intrinsic factors human meager, such as a limited attention, it is difficult to come up with a judgment that is best for the individual and therefore allows him to select the best choice. But to cope with the large amount of information that often exceeds the limits of human processing, in the decision-making process the human being does not evaluate every possible option and uses automatically and unknowingly these mental shortcuts that allow him to quickly implement choices. Heuristics are also crucial to understand how consumers make decisions and how marketers can influence these choices. Listed below are some of these and their impact on marketing, while in the following chapters some of these will be analyzed in a specific and in-depth:

1. *Representative heuristic*: This cognitive principle reflects the tendency to evaluate the probability of an event based on its conformity to a pre-existing cognitive prototype. This mechanism can be capitalized by designing products or communication strategies that adhere closely to the expectations and mental models of the target audience, thus enhancing the attractiveness and perception of reliability of the offer. Representative heuristics is a cognitive process that evaluates the probability of an A event based on its similarity to a previously known B event. This mental strategy, while effective for speeding up decision-making, can lead to systematic distortions or biases, due to the frequent recourse to stereotypes and prejudices. An emblematic example of this dynamic is illustrated by an experiment conducted

⁶ *Stato d'animo (2023), bias ed euristica: cosa sono e quali sono gli stati d'animo più frequenti*

by Kahneman and Tversky, which introduces the case of a fictional character, Linda ⁷. Linda is described as a thirty-one-year-old single woman, very intelligent and determined, graduated in philosophy and active in causes of discrimination and social justice during her university years, also participating in antinuclear demonstrations.

During the experiment, participants were presented with a list of eight possible future scenarios for Linda and asked to classify them according to the probability of their occurrence. Among the proposed options, the crucial ones for the test were: "Linda is a bank teller" and "Linda is a bank teller active in the feminist movement". Contrary to statistical logic, most participants felt that Linda was more likely to be a bank teller active in the feminist movement than simply a bank teller. This result illustrates two fundamental concepts in the field of heuristics and cognitive biases: the "negation of base probability" (base-rate neglect) and the "fallacy of conjunction". The first phenomenon occurs when people ignore the general probabilities of an event in favor of specific information, and the second refers to the erroneous tendency to attribute a greater probability to a combination of events than to a single event, despite this being mathematically unlikely. These errors highlight how the representative heuristic, while being a useful tool for reducing complexity in everyday decisions, can lead to erroneous conclusions, especially in probabilistic judgment contexts.

2. *Availability heuristic*: This heuristic concentrates on the tendency to gauge an event's frequency or likelihood depending on how simple it is to recall relevant examples from memory. This heuristic has uses in marketing, such as making product information easier to remember and accessible through memorable slogans, pertinent visuals, or testimonies, which raises the possibility that consumers will choose a product while making a purchasing decision.

It is a fundamental idea in cognitive psychology that explains how people judge the chance or frequency of an event by how easily they can recollect similar instances from memory. The influence of Amos Tversky and Daniel Kahneman on how one perceives the real frequency or probability of information depends on its availability in memory. It is based on the premise that if examples of a particular event are easily recalled in memory, that event is perceived as more frequent or likely. This ease of retrieval can be influenced by various factors, including recent exposure, the emotionality associated with the events, or their novelty. In the field of marketing, in fact, availability heuristics are exploited to influence

⁷ Amos Tversky e Daniel Kahneman, *Extensional Versus Intuitive Reasoning: The Conjunction Fallacy in Probability Judgment*, in «*Psychological Review*», 90, 1983, pp. 293-315.

consumer purchase decisions. Techniques employed include the use of catchy slogans, memorable images, and persuasive testimonials. These tools make information about a product easily accessible and memorable to consumers, increasing the likelihood that the product will be chosen during the purchase decision process. For example, an advertising campaign using a famous sports testimonial can make the memory of the associated product more available, thus influencing the perception of its popularity or desirability. This type of heuristic can significantly alter the perception of reality.

3. *Anchor heuristics*: It makes use of the propensity to base estimations on an initial value (the anchor) then modify them in response to fresh information. This can be taken advantage of in marketing techniques by starting at a high price and then offering limited-time deals or making comparisons with more expensive products. This will increase the perception of the offer's worth and desirability at a given price.

This cognitive process is especially important when making decisions where individuals have to estimate or select between several choices in the face of ambiguity. It draws attention to the way that the initial value offered in a sequence of choices serves as a benchmark that further estimations often center around. Individuals, even unconsciously, tend to use this initial value as a baseline and make insufficient adjustments based on the subsequent information they receive. This phenomenon occurs because the initial anchor establishes a framework that can dominate subsequent thinking. In the field of marketing, anchor heuristics are frequently used to influence consumers' perceptions of the value of a product or service. In conclusion, anchoring heuristics are an effective marketing tactic that can have a big impact on consumers' decisions to buy. To guarantee that consumers make well-informed decisions, its application necessitates close examination of the ethical ramifications as well as a dedication to justice and openness.

4. *Heuristic of affectivity*: It refers to the tendency to make decisions driven more by emotions and feelings than by detailed cost-benefit analysis. In marketing, this heuristic can be exploited by eliciting positive emotions (such as joy, nostalgia, excitement) through the use of evocative images, engaging narratives or musical elements, positively influencing value perception and propensity to purchase. In the field of cognitive psychology, it describes the tendency of individuals to make decisions based more on emotions and personal feelings than on a logical and detailed assessment of costs and benefits. This decision-making mode emphasizes the role of immediate emotional responses in cognitive processes, often at the

expense of rational, thoughtful analysis. This heuristic is based on the principle that emotions can influence, and in many cases guide, decision-making. Emotions act as quick indicators of pleasure or disgust, which can make an option more or less attractive without conscious deliberation of its long-term implications. In marketing, affectivity heuristics are frequently exploited to improve the attractiveness of products and services by stimulating the propensity to buy. Common techniques include the use of evocative imagery, emotionally engaging narratives, and music, all aimed at eliciting positive emotions such as joy, nostalgia, or excitement. These emotional cues are designed to create an emotional connection with the product or brand, thus facilitating quick purchase decisions that can be perceived as more rewarding by the consumer.

5. *Scarcity heuristics*: This heuristic rests on the tendency to place greater value on items perceived as rare or of limited availability. Marketing techniques can exploit this principle by creating a sense of urgency or exclusivity around a product, such as through limited editions or temporary offers, stimulating immediate consumer action to avoid missing the opportunity. It is a psychological principle that rests on the human tendency to value more positively and desire items or resources that are perceived as rare or hard to access. This heuristic is based on a number of cognitive mechanisms that influence consumption behavior and decision making, leading individuals to place a higher value on what is scarce. This scarcity is often perceived as an indicator of higher quality or desirability. In resource-limited settings, individuals tend to perceive rare items as more valuable, which can be explained by evolutionary psychology: in environments where resources were limited, the ability to obtain and conserve scarce resources could determine survival. This predisposition has remained engrained in human decision-making mechanisms, even in modern contexts where scarcity can be artificially created or exaggerated. In marketing, scarcity heuristics are therefore widely exploited to increase the attractiveness of products or services. Common tactics include creating limited editions, promoting time sales, or limiting the availability of certain items. These strategies induce a sense of urgency and exclusivity in consumers, prompting them to take immediate actions, such as buying, to avoid the risk of missing the opportunity.

BEHAVIOURAL BIAS

The term "bias" comes from the ancient Greek "epikársios", which means "oblique". Before assuming its current Anglo-Saxon form, the term underwent a series of linguistic evolutions through Latin, Provençal French as "bias", and finally English. Originally, as part of the game of bowls, "bias" indicated a throw diverted or with adverse outcome. In the second half of the 16th century, the term acquired more extensive connotations such as inclination, predisposition and prejudice. Biases are cognitive constructs based on distorted perceptions, prejudices, and ideologies, deviating from critical reasoning. They emerge when an individual makes quick choices with limited energy expenditure. Frequently, these cognitive errors affect everyday life, extending their impact not only on decisions and actions, but also on how thought is formed.

The fundamental aspects of a Bias

A bias typically emerges as a consequence of the use of a heuristic, associating with the concept of cognitive error. It discusses, therefore, ineffective heuristics, ie prejudices generated by the brain that are based on non-critical perceptions of the real world, resulting in incorrect conclusions and unjustified influences. The probability of a bias increases inversely to the time available to make decisions. These mechanisms represent simplification strategies adopted by the brain to reduce the cognitive load, influencing not only decisions and behaviors, but also extending to thought processes.

Cognitive biases

A cognitive bias, or emotional bias, arises as a consequence of the ineffective application of a heuristic and is a mental construct that leads to wrong perceptions or prejudices. The origin of the term "cognitive bias" dates back to 1974⁸. The two economists described this phenomenon as a process whereby individuals make their decisions using a limited number of "mental shortcuts", rather than rational processes. They can be defined as distortions of judgment that lead to irrational decisions. Biases influence the decision-making process in the intuitive system and, distorting perception, also affect the rational system and the consequent reasoning. They are constructs based, outside of a critical judgment, on wrong or deformed perceptions, prejudices and ideologies; often used to make decisions without the right mental commitment. These are cognitive errors that can be found in everyday life, decisions, behaviors and thought processes. Therefore, bias are heuristic particulars

⁸ D.Kahneman, A.Tversky, "Judgment under Uncertainty: Heuristics and Biases"

used to make judgments, which in the long run become prejudices, on things never seen or never experienced, instead, as seen in the introduction, heuristics in the proper sense function as a mental shortcut and allow you to have access to information stored in memory.

Cognitive biases are numerous and various psychologists have tried to classify them according to different cognitive theories. Nevertheless, the taxonomies developed, originating from distinct theoretical approaches and diversified criteria, often do not support direct comparisons between the proposed classifications. General categories were identified (Ceschi e Sartori, 2012) following extensive empirical research, which led to the identification of five main categories of cognitive bias. A taxonomy of heuristics and bias based on the individual predispositions to incur cognitive distortions.

1. *Anchor bias (Anchor bias)*: A phenomenon wherein, in the decision-making process, there is a tendency to overestimate an initial value or a singular datum, using it as the predominant reference in subsequent evaluations. This bias in reasoning, in fact, affects the first idea one gets regarding a given product. This bias is particularly relevant in decision-making processes in which subjects must make estimates or decisions under conditions of uncertainty.

Anchoring bias occurs when individuals use an initial piece of information as an 'anchor,' and it overly influences their subsequent decisions, even though other information might suggest viable alternatives. A classic example is when the initially proposed price for a product or service sets a benchmark that will influence how consumers perceive subsequent prices offered. When evaluating options or formulating estimates, the initial anchor can lead to systematic bias. The anchoring bias is often explained through information processing theory. When people process information in situations of uncertainty, initial information can simplify decision making by providing a convenient starting point. However, this can also prevent full evaluation of new information that contradicts the anchor. Studies by psychologists such as Amos Tversky and Daniel Kahneman have shown that anchoring can significantly influence economic and decision-making behavior. Their research has shown that even meaningless anchors, such as a number resulting from a roll of the dice, can influence people's estimates on completely disjointed issues.⁹ To reduce the effects of anchoring, it is essential to promote greater awareness of this bias in decision-making processes. Techniques such as exposure to

⁹ (Tversky, A., & Kahneman, D. (1974). *Judgment under Uncertainty: Heuristics and Biases*. *Science*, 185(4157), 1124-1131)

a wide range of alternatives before making a decision, or the practice of actively challenging initial information, can help mitigate the anchoring effect.

2. *Cost*: Tendency to overemphasize the value of incurred costs or potential losses, irrationally influencing current and future decisions. This phenomenon represents a deviation from economic and decision-making rationality, in which individuals persist in suboptimal behavior because of investments already made. This bias implies that future decisions are overly influenced by past costs that cannot be recovered, regardless of their relevance to current or future decisions. The tendency to overemphasize the value of costs incurred typically emerges in contexts where individuals or organizations must decide whether to continue or discontinue a project that has already involved significant investments in time, money, or other resources. The underlying reasoning is often a desire to 'not waste' previous investments, even though logically such costs should not influence the evaluation of future options. Psychologically, the fallacy of sunk cost is related to the desire to justify past decisions. Admitting that a previous investment was a mistake can be psychologically uncomfortable and threaten one's self-image as a competent decision-maker. This can lead to further investment in failed projects, amplifying losses rather than limiting them. The sunk cost fallacy can have a significant impact on economic and organizational behavior. A classic example is persisting in product development despite clear evidence of an unfavorable market. Economic theory suggests that decisions should be based solely on future marginal costs and benefits, ignoring incurred costs that are sunk. To mitigate the impact of the sunk cost fallacy, it is important to promote decision-making practices that emphasize objective and systematic analysis of future options, regardless of past investments. Training and educational interventions that focus on the distinction between sunk costs and future decisions can help reduce this bias. In addition, decision support tools such as cost-benefit analysis can provide a clearer framework for rational evaluations. In conclusion, the sunk cost fallacy represents a significant challenge in the field of economic psychology. Understanding and addressing this bias can not only improve the effectiveness of individual and organizational decisions, but also contribute to the financial and operational health of the entities involved.
3. *Bias of desire*: Also known as “wishful thinking” is a psychological phenomenon that involves a bias in judgment and decision making in favor of what is personally desirable rather than based on objective evidence. It refers to the influence exerted by personal desires on decision making, where personal preferences distort the objective assessment of options. This bias is

particularly salient in situations where available information is ambiguous or incomplete, allowing personal preferences to play a more significant role in shaping beliefs and decisions. Wishful thinking bias occurs when an individual adopts beliefs or makes decisions based more on hopes and desires rather than on an unbiased assessment of the available evidence. This behavior is often observed in various contexts, from economic to political, where positive expectations toward a certain outcome can lead to underestimating risks and overestimating benefits. From a cognitive perspective, the desire bias can be seen as a defense mechanism that protects the individual from disappointments or unpleasant realities. However, this bias can impair the ability to make rational decisions, leading to choices that are not aligned with logic or objective probabilities.

4. *Framing*: “Frames” are those basic structures of understanding that “make sense” of what is happening, giving the possibility of better understanding reality. Framing, then, is that effort that each person makes whenever he or she is in a new context and consists of recognizing what is happening in that particular context. Framing effects occur when people give different responses to structurally similar problems depending on the “frame” with which they are presented; in fact, it describes the phenomenon whereby the way information is presented significantly influences decision making. This principle emphasizes the importance of contextual influences on the perception and objective evaluation of information. Framing is defined as the structure or context surrounding a particular situation that is used to make sense of events. These “frames” act as filters through which information is interpreted. In decision-making, frames influence not only how we perceive options, but also how we evaluate the consequences of our choices. Kahneman and Tversky, suggest that people do not react objectively to options presented, but rather respond according to relative perception, determined by the “frame” used. This suggests that different people may decide differently even when faced with the identical situation if it is framed in a different way.

CHAPTER 2: Neuroscience and Behavioral Strategies in Event Marketing

The field of neuroscience and behavioral strategies in event marketing represents a fascinating and innovative intersection between science and business practice. Neuroscience, which studies the nervous system, provides in-depth and detailed insights into the processes by which individuals perceive, process, and react to external stimuli.

2.1 Cognitive and Behavioral Strategies in Event Advertising

In event promotion, cognitive and behavioral tactics are used to subliminally and decisively influence audience perceptions and choices. These approaches are especially relevant in the digital age, which is characterized by increased competition for attention and influence on behaviors. Cognitive techniques, based on consumer psychology principles, are intended to optimize advertising content so that it satisfies the target audience's requirements, desires, and expectations. One of the most effective approaches is the use of "nudges," a term used by Thaler and Sunstein (2008) in their popular treatise that describes how minor modifications in the context of choice can steer individual decisions without forcing default options. Nudges in event advertising are manifested through the production of invitations that emphasize the limited supply of tickets or the exclusivity of the event, encouraging immediate decisions to prevent missed opportunities (Thaler & Sunstein, 2008). In simultaneously behavioral tactics rely on our ability to comprehend information and respond to certain stimuli. According to Petty and Cacioppo's (1986) theory of likely processing, individuals are driven to process advertising messages more thoroughly when they perceive themselves to be personally involved or interested. In event promotion, this results in the adaptation of advertising messages to the particular interests of the audience, increasing the likelihood of eliciting a favorable emotional response and stimulating participation.

Consequently, the strategic use of cognitive and behavioral dynamics not only enhances the effectiveness of event advertising but, if properly implemented, can radically transform the way audiences perceive and interact with the event, contributing significantly to its success and participation.

2.1.1 Nudges: the limits, role and risks of the application of nudges in event advertising; their influence on decisions

The theory of nudging, developed more recently, departs from the homo economicus conception of classical economic theory, which describes the individual as perfectly rational and capable of making unbiased decisions that maximize utility to achieve one's goals. This view of homo economicus is impractical since, in reality, human decisions are flawed and impacted by a variety of circumstances, including a lack of information, insufficient knowledge of the subject matter, and the influence of society and emotions (Boschi, 2018). Humans, unlike homo economicus, are influenced not only by economic incentives, such as lower taxes on specific commodities, but also by factors such as default options, product placement preferences in supermarkets, and so on (Thaler & Sunstein, 2008). "Nudging" translates to "pushing," "nudging," or "nudging." A nudge, then, is the act of gently encouraging people toward behaviors that are more beneficial to themselves and the community. This method, sometimes known as "libertarian paternalism," entails determining the best option for individuals and the community (such as protecting the environment or health), but without imposing obligations or restrictions. A nudge is an intervention that changes people's behavior in a predictable way without prohibiting any options or significantly changing economic incentives. To be considered a nudge, the intervention must be easily avoidable and not excessively costly (Thaler & Sunstein, 2008).

"Nudge strategies" are a highly effective behavioral method in the realm of event marketing that aims to influence people's decisions without using coercion. These discrete interventions, which subtly modify the context in which decisions are made, are predicated on the notion that small contextual adjustments can guide desirable behaviors without limiting possibilities.

*"all feature of the choice architecture that modifies people's behavior in a predictable way without completely eliminating all options or drastically changing their incentives is called a nudge. An intervention needs to be inexpensive and simple to avoid in order to qualify as a nudge"*¹⁰

(Thaler & Sunstein, 2008).

¹⁰ Richard H. Thaler, Nobel laureate in economics, and Cass R. Sunstein, professor of law at Harvard Law School, introduced the concept of nudge in their book "Nudge: Improving Decisions About Health, Wealth, and Happiness" (Thaler & Sunstein, 2008).

Two systems underlie human thought: System 1, which is spontaneous and instinctive, and System 2, which is thoughtful and deliberate (Kahneman, 2011). System 2 necessitates concentration and focus, diverting attention to taxing mental tasks, whereas System 1 responds swiftly and lightly, depending on habits, assumptions, and emotions. Nevertheless, there is a lack of perfect alternation between the two systems, which can result in poor decisions. The brain's natural tendency is to expend as little energy as possible and to use System 1—which frequently results in wrong decisions—when faced with straightforward or well-known challenges. Cognitive biases are the term used to describe these systematic errors (Kahneman, 2011).

Assumed to be completely rational, Homo economicus would always employ System 2 to make deliberate decisions independent of circumstance, habit, emotion, or mood. But actual people are impacted by a variety of things and frequently can't distinguish between rational thought and their habits and feelings. Furthermore, people frequently adopt the mindset of the majority, believing that the option that is most popular is the best one. Subject matter expertise is essential. For example, a wine specialist may select the ideal wine with ease, whereas a novice investor may struggle to make sound financial decisions. The Dunning-Kruger effect is a cognitive bias that causes people to overestimate their knowledge on things they are not very knowledgeable about (Dunning, 2011).

Due to our limited capacity for reason and willpower, humans frequently make poor decisions. Because it acknowledges these constraints and takes advantage of them to assist individuals in making better decisions and enhance their general well-being, nudging is effective (Clochard, 2018).

By structuring the context of decision-making so that even seemingly insignificant factors can have a significant influence, nudging leverages cognitive biases to alter behavior through choice architecture. The person's conduct is greatly influenced by the "architects of choice"¹¹.

Being that these are decisions made by individuals, it is critical that the architecture comprehends and represents human behavior. Various methods are available to choose architects to modify it, such as altering the default selection, the order in which options are given... Choice architecture can be divided into two basic categories: option description and choice structure. What is provided to individuals who will have to make the decision is the former worry, and the presentation method is the latter. (Johnson, E. 2012).

There can never be a neutral architecture since choices are influenced by the way they are presented. This idea is used in a variety of disciplines, including politics, economics, and marketing, to influence

¹¹ *The architects of choices, i.e., the people who arrange the settings in which decisions are made, can implicitly influence the choices of individuals and direct them toward better living conditions by organizing decision-making contexts intuitive (Thaler et al., 2013).*

the choice that is made. Since the configuration of a context has a significant impact on individual decisions, it makes sense to design a choice architecture that can influence people to make choices that improve their own well-being even if they would not have done so on their own. Nudge marketing gently applies neuromarketing techniques by framing stimuli as advantageous chances. The secret to neuromarketing's potency is that feelings influence decisions through impulsive, natural thought processes. One can guide choices by establishing the conditions that support a behavior without requiring justification. People can be persuaded to engage in the desired behavior by even modest adjustments to the way an option is presented. This concept is predicated on the assumption that people's decisions are greatly influenced by the context and format in which options are given. For instance, only altering a message's phrasing, the arrangement in which options are shown, or the choice of particular graphics and colors can significantly affect how customers behave. These small, seemingly unimportant adjustments have the power to influence people's thoughts and behaviors, influencing them to make better choices. Given that consumers' perspectives can be shifted by even slight contextual modifications, nudge marketing is effective. This tactic exploits the mental shortcuts, or cognitive biases and heuristics, that people employ to make snap decisions. One way to make one option more appealing than another is through the application of the framing principle, which deals with the presentation of information. In addition to altering the options offered, nudges in marketing also depend on fostering a sense of personal connection and trust. Customers are more likely to choose wisely when they believe the options are consistent with their beliefs and interests and that the business or brand they are dealing with is reliable. This emotional and personal involvement is crucial to creating a lasting bond between the consumer and the brand.

Nudges, or behavioral nudges that guide people toward better choices without restricting freedom of choice, have become key tools in event advertising.

However, it is critical to question how much these techniques actually influence individuals' decisions. Roger Dooley (2012) points out that although brain scans can indicate the areas of the brain activated by certain advertising stimuli, they cannot directly force consumer decisions. Similarly, neuroscientist Laura Pirotta states that "there is no scientific evidence for a buy button." In other words, the human brain can be influenced by nudges, but the final decision remains under the control of the individual, based on his or her personal preferences.

In the context of event sponsorship, nudges can be used to increase participation. However, there are limitations and risks associated with their use:

1. Overexposure and Manipulation: The heavy use of nudges in advertising can lead to a form of manipulation, in which individuals' choices are driven too strongly. For example, the overuse of messages that emphasize urgency ("Just for today!") can create a sense of pressure, influencing decisions in a less conscious way.

2. Limitations of Subliminal Advertising: Some experiments, such as those conducted by Ferraro and Bettman (2009), suggest that subliminal messages can influence purchase decisions, although the extent of this influence remains uncertain. Although nudges are not necessarily subliminal, their use to direct decisions may raise similar concerns about the effectiveness and ethics of unconscious manipulation.

3. Risk of Manipulation and Ethics: The application of nudges in advertising must be carefully managed to avoid deceptive practices. As stated in Art. 1(2) of Legislative Decree 145/2007, advertising must be clear, truthful, and fair. The use of nudges must adhere to the principles of transparency and honesty and avoid compromising the free will of the consumer.

4. Uniformity and Standardization: The widespread adoption of nudging techniques may lead to the standardization of advertising campaigns, reducing the originality and effectiveness of marketing strategies. Companies may start using the same nudges, reducing diversity in strategies and potentially decreasing the overall effectiveness of advertising campaigns.

5. Social and Cognitive Considerations: It is important to remember that consumers are not only influenced by emotions, but also by their experiences and cognitive aspects. Some advertisements may focus too much on the emotional response, neglecting the social and cognitive dimensions of the consumer experience. For example, an ad that uses a nudge to create a sense of urgency might ignore the need to communicate the real value of the event.

However, it is essential to apply these techniques with caution, balancing effectiveness with ethical and practical considerations. Conscious use of nudges can optimize advertising campaigns without compromising transparency and consumer free will. Critical analysis of the influence of nudges and cognitive biases in event participation decisions is crucial to developing advertising strategies that are both effective and respectful of ethical and legal norms.

2.1.2 The Events

Events are organized gatherings intended to honor, commemorate, or advance a certain cause. These events, which can last a short while and draw big or small crowds, are planned with particular goals in mind, like corporate and territorial marketing, historical celebration, entertainment, and cultural promotion. Behrer and Larsson were the first to examine an event's communication potential. They said that *"an event is an activity that allows a target audience to be reached in a specific place and time, a gathering where messages are addressed and recreational activities take place."*¹²

Taking this statement as a starting point, we can move forward into a broader definition:

*"An event is a complex communication initiative, circumscribed in time, promoted by a company/organization in order to arouse interest, draw the attention of its audience/influencers and thus involving the direct presence/participation of a specific audience, interested in the contents exhibited."*¹³

Therefore, we can refer to a wide range of activities and events that have various features and are conducted both locally and globally when we use the term "event." However, spectacle and exceptionality are really the fundamental conditions that allow us to speak about an actual event. We would be dealing with regular public or business events in the absence of these regulations.

In recent years, events have assumed an increasingly significant role in the marketing and communication strategies of companies and organizations aiming to promote their activities, products, services, territories, or ideas. The primary objective is to generate a positive orientation and to create or enhance value for a brand, service, product, organization, or geographical area through emotional and experiential actions (such as informative and cultural content, entertainment, interaction, and relationships).

A well-structured marketing strategy for an event represents an evolution of public relations activities and can serve as a powerful promotional vehicle by allowing participants to experience a tangible interaction and fostering empathy between the brand and the users. Therefore, the creation of an event is a fundamental tool to be included within the mix of promotional and communication activities.

¹² Quoted in Cherubini S., Patuglia S., *"Comunicare con gli eventi. Riflessioni e casi di eccellenza"* (FrancoAngeli, 2007)

¹³ Vecchiato G., *"Relazioni pubbliche e comunicazione. Strumenti concettuali. Metodologia. Case history"*, (FrancoAngeli, 2003)

Events represent a powerful means of enhancing the image of a geographical area, company, product, or service. They play a crucial role in generating awareness and improving competitive positioning by promoting and disseminating a coherent and strategic image. The advertising communication associated with events has evolved over time, reflecting technological advances, socio-cultural changes, and emerging trends. Events offer a versatile, multidimensional, and multichannel communication platform capable of adapting to diverse promotional needs. This flexibility allows for the transmission of messages through various formats and channels, effectively meeting contemporary marketing demands. Due to their live nature, events have privileged access to their target audience, enabling direct and engaging interactions. This facilitates selective yet inclusive communication, creating participatory experiences that generate a strong emotional impact. Participation in events fosters the creation of empathy between the audience and the brand, establishing a sense of connection and involvement that makes the event memorable. Additionally, events provide a unique opportunity to differentiate from competitors, being more impactful compared to other forms of communication. Through media relations activities, events can access media more easily, amplifying the visibility and impact of the promotional message.

Another fundamental aspect of events is their ability to generate profit, creating new revenue streams and fostering economic growth opportunities for the area or organization involved. Events can attract investments, promote products and services, and build strong and lasting relationships with the public, ensuring a positive and sustainable impact over time. Events are not only a means to promote products and services but also an integrated element of daily life that will continue to influence society for a long time. They contribute to creating value and awareness in a versatile, empathetic, and profitable manner, leveraging the dynamics of multidimensional communication and direct interaction with the public. The nature and scope of events can differ greatly; examples include fairs, festivals, concerts, conferences, athletic events, exhibitions, and ceremonies. Careful planning is necessary for their organization, taking into account a number of factors such as participant experience, money, communication, security, and logistics. Events have become much more prominent in recent decades, not just as tools for social gatherings and entertainment but also as effective methods of economic development and promotion. Events have become essential in territorial marketing because of their power to draw tourists and improve the perception of host communities. Additionally, an increasing number of businesses are taking use of event marketing to advertise their goods and services, organizing or sponsoring events to raise their profile and visibility. Because events can differ greatly from one another in terms of their qualities, it is challenging to classify them precisely due to their enormous variation. To further our understanding of the various event categories, we utilize the tables created by Getz and Marongiu in their publication "Event

Management and Event Tourism" (1998). Eight categories of planned events are included in the first table, which includes both private and public events.

Because of their outstanding variety, classification is difficult in the field of event studies. Events can have a wide range of features, which makes it challenging to classify them accurately and consistently. To aid in the examination and administration of events, tables that delineate several categories of organized events—considering both public and private objectives—can be consulted.

TYPE	EVENTS
CELEBRATIONS	Festivals, carnivals, religious events, commemorations
ARTISTIC / ENTERTAINMENT EVENTS	Concerts, exhibitions, artistic awards
BUSINESS / COMMERCIAL EVENTS	Trade fairs, markets, meetings, conferences, conventions
SPORTS COMPETITIONS	Professional or amateur competitions
EDUCATIONAL / SCIENTIFIC EVENTS	Seminars, workshops, congresses
RECREATIONAL EVENTS	Games, non-competitive sports, pastimes
POLITICAL / CIVIC EVENTS	Inaugurations, official visits, investiture ceremonies
PRIVATE EVENTS	Personal celebrations (anniversaries, rites) and social events (parties, reunions)

Figure n 3: Types of events

The table offers a methodical categorization of many event kinds, each with distinct traits and goals. Festivals, carnivals, religious gatherings, and remembrances are examples of celebrations. By uniting the community in celebration of common customs and values, these events play a crucial role in bolstering social cohesion and cultural identity. Artistic and entertainment events, such as concerts, exhibitions, and artistic awards, aim to promote culture and the arts. These events provide a platform for artists and performers to showcase their talents and gain recognition while offering high-quality entertainment to the audience.

Business and commercial events, including trade fairs, markets, meetings, conferences, and conventions, are crucial for creating professional networks, exchanging knowledge, and promoting

products and services. They facilitate interaction among professionals from various sectors and provide access to new business opportunities. Sports competitions, both professional and amateur, promote physical activity and fair play. These events have significant economic and social impacts, encouraging active participation and interest in sports within the community. Educational and scientific events, such as seminars, workshops, and congresses, are designed to facilitate knowledge dissemination and innovation. They represent an important opportunity for continuous education, idea exchange, and the presentation of advanced research. Recreational events include games, non-competitive sports, and pastimes. These events promote well-being and social interaction, offering leisure activities that help reduce stress and improve quality of life. Political and civic events, such as inaugurations, official visits, and investiture ceremonies, are essential for governance and diplomacy. They promote civic participation and strengthen democratic institutions, highlighting the importance of public engagement in political decisions.

Finally, private events, including personal celebrations like anniversaries, rites, and social events like parties and reunions, are crucial for reinforcing personal and family bonds. They provide opportunities for intimate interaction and celebration in private settings. Organizing and managing these different types of events requires a multidisciplinary approach that integrates project management, marketing, logistics, and stakeholder relationship management. Each type of event has specific needs and characteristics that must be carefully considered to ensure the success and effectiveness of the initiative. This approach allows for maximizing the positive impact of events, enhancing social cohesion, cultural promotion, economic growth, and individual well-being.

This classification allows for a more systematic framing of the wide range of existing events, providing a basis for the analysis of their specific characteristics and both their social and economic implications. Communication is a fundamental element of an event as well as of an individual: it is integral to the construction of his or her identity and image.

2.1.3 Advertising

"Advertising is a consequence of the brand [...], it is the last stage of a process that begins with the creation of a difference, of added value, and proceeds with the putting into industrial production and the assumption of the associated financial risk"

(Kapferer 1991, 47- 48).

The term "advertising" is derived from the word "public," implying the act of making a product or service known to the general populace. Essentially, it means to disseminate, broadcast, and communicate through all available media channels to convey a message that is pertinent to sales objectives. Advertising communication has evolved and transformed over time, driven by technological advancements, socio-cultural changes, and prevailing trends. It can be considered not merely a sales message but an integral element that has accompanied human life and will continue to do so, permeating the fabric of everyday existence.

The purpose of advertising is to influence people to buy particular goods or take particular actions. To do this, it typically uses subliminal tactics and language in a style that is suggestive and allusive, often in a telegraphic manner. The role of advertising today is a little different than before. In the past, it was important for a person to impress someone and convince them to buy the product, whereas today it is intended to attract attention through seduction.

According to Kotler's definition, advertising is *"any paid form of non-personal presentation and promotion of ideas, goods and services by a well-identified promoter."*¹⁴

To make an advertisement interesting to the public, it is essential to carefully consider the best way to present a product. In the past, there were far fewer advertisements, but with the expansion of print media and digital media, the situation has changed significantly. In today's world, everything is available to people, who can easily and immediately obtain the desired products.

Advertising is one of the five fundamental components of the communication mix used by companies to convey messages to their customers and various segments of the public with whom they do not have direct contact, to promote their products. Compared to other components of the communication mix, advertising has distinctive characteristics that are important to highlight:

¹⁴ Kotler, 2005, citato in Pastore e Vernuccio, 2008, p. 254

- *Public Presentation:* Advertising is a mass communication medium that proposes a standardized offer. Since all potential buyers receive the same message, the motivation to purchase becomes universally recognized.
- *Persuasiveness:* This communication tool allows for message repetition, enabling buyers to receive and compare different communications. Large-scale advertising provides positive information about the company's size, popularity, and success.
- *Amplified Expressiveness:* Advertising offers the opportunity to present the company and its product using print, sound, and colors effectively. However, the expressive success of the message can sometimes overshadow the content of the communication itself.
- *Impersonality:* Advertising is an impersonal form of communication, incapable of establishing a direct dialogue with the audience.

Advertising is defined as a form of impersonal presentation of ideas, goods and services, carried out by an identified communicator and for a fee, with the aim of drawing consumers' attention to a product through various media. This definition highlights the crucial role of advertising in achieving product sales and dissemination goals.

In the context of advertising, two major areas can be distinguished: online and offline advertising. Online advertising is the mode of communication that propagates through the internet, which is highly sought after by brands today due to the large audience present on social media, websites, and video platforms. Numerous advertising and integrated communication agencies have emerged in recent years to cater to the needs of both small and large brands, as the demand is very high. Any persuasive strategy that exploits the internet's capabilities is considered an online strategy. Various types of online advertising include:

- *Banner Ads:* Small or large banners placed on third-party websites or web platforms, occupying parts of the screen on smartphones, PCs, and tablets. These can be images, videos, or animated GIFs. The downside of this advertising form is overuse; it's not uncommon to find websites so full of banners that reading is compromised.
- *Paid Ads:* Search engines like Google allow placing paid advertisements for products and services at the top of the search results page (SERP). Being among the top positions, these ads can receive many clicks from users, increasing the likelihood of sales.
- *Testimonials:* Online testimonials have evolved into influencers whose goal is to influence people towards purchases, leveraging their status (online or offline).

- *Email Marketing & Newsletters:* Increasingly used for direct marketing actions, brands aim to collect users' sensitive data. Simple prospect emails are enough to send communications, newsletters, and discount offers using engaging copy and storytelling to achieve specific goals, such as creating engagement.
- *Sponsored Posts:* The viral power of social media allows brand content to reach a well-defined target. Through posts on Instagram, Facebook, LinkedIn, or other social platforms, companies can promote themselves on the web.
- *Sponsors:* Platforms like YouTube and Twitch, within their video content, can insert promotional materials, product reviews, or engage in unconventional marketing actions.

One of the significant advantages of online communication is the ability to collect user data, leveraging technology to gather clicks, views, and consumer preferences. The final data, processed and segmented, help guide future communications, an aspect that is not usually possible with offline advertising.

Despite the advent of online marketing, offline advertising communication has never disappeared. Some of the most utilized forms of offline promotion include:

- *Print:* Print media, one of the earliest forms of advertising communication, remains prevalent today. Newspapers, magazines, flyers, and brochures are all paper-based forms that contain advertising messages aimed at sales, persuasion, and brand awareness.
- *Television:* Since its introduction in Italy in the mid-1950s, television remains one of the most followed media by Italians. TV shows, movies, and documentaries are often interrupted by advertisements ranging from 5 to 60 seconds. Product placement and sponsorships within programs are also common.
- *Radio:* Radio, another widely used technology, allows inserting promotional messages between songs to promote small and large brands. Differentiation through unique, persuasive, and strategic communication is essential on the radio, with significant impact achieved through words, music, and sounds.
- *Unconventional Communication Strategies:* Guerrilla marketing, ambient marketing, and other unconventional strategies found in urban environments are part of this large group. Anything visually and tangibly perceptible that does not fall within the web's domain, utilizing public spaces' potential, is considered offline advertising.
- *Events:* Live events can also contain sales-oriented messages and be organized directly by a brand or sponsor. These events feature Above the Line communications like roll-ups, flyers,

and posters, as well as online strategies like interactive screens and web tactics, not excluding unconventional activities.

By combining both online and offline advertising strategies, brands can effectively reach and engage their target audience, utilizing the strengths of each medium to create comprehensive and impactful marketing campaigns.

Additionally, communication—which is appropriate for advertising—performs a basic informational role by providing information that, whether intentionally or inadvertently, alters the state of knowledge of interlocutors. It is feasible to differentiate between direct and indirect communication objectives. The fundamental and distinguishing goals that are meant to be attained in a direct and primary manner are known as immediate objectives. Conversely, indirect objectives are broad goals that, when plans are carried out, communication helps to accomplish. The more that communication facilitates and increases the likelihood that these objectives will be met, the more effective it is. The sender of information and expertise to third parties gains when it can successfully sway the decisions and actions of the recipients, persuading them to act in the recipient's best interests. While the communication's recipients gain from the information they receive and use it to support their own decisions, the issuer simultaneously seeks to shape the conduct of the people the organization engages with. The role of advertising communication within this system is to further stimulate purchase renewal by promoting new versions of the product, praised for their modernity and often for their technological superiority.

In addition, some scholars argue that advertising, through its persuasive power, can prevent consumers from making rational choices. It appeals to consumers' emotions by constructing suggestive scenarios that invoke their ambitions or insecurities, causing them to identify the product as a means to achieve their goals and overcome anxieties and difficulties.

2.1.4 The Application of Nudges to Event Advertising

The effectiveness of nudges in event advertising lies in their ability to act below the audience's explicit awareness threshold, making them powerful tools for shaping consumer behavior in responsible and ethical ways. The use of such strategies, when conducted with transparency and respect for participants' principles of self-determination, can therefore not only increase the effectiveness of advertising campaigns, but also improve the overall consumer experience, ensuring deeper and more informed engagement.

Nudges can be carefully employed in event promotion to boost attendance and interaction. These interventions are effective but subtle, influencing people's behavior without restricting their options. They use behavioral psychology principles to non-coercively guide potential participants' decisions, increasing their likelihood of participating in the events that are being promoted. Compliance with social standards is one way that nudges can be employed in event advertising. People are highly impacted by what other people do, particularly when those behaviors are seen as societal norms. Emphasizing the involvement of like-minded individuals or other community members in communications could encourage other people to do the same.

The psychology literature has extensively documented this phenomena, and Cialdini (2009)¹⁵ has demonstrated that people have a tendency to imitate the actions of others, especially when faced with uncertainty. Default options are another powerful tool in the context of nudges. People tend to choose the default option to avoid the effort of making an active choice, a behavior known as the default effect. When enrollment in an event is set as the default option, people are more likely to remain enrolled rather than opt not to participate. It has been shown over time that default options take advantage of people's tendency to avoid active changes, thereby increasing automatic participation in events. Thaler and Sunstein (2008). This principle can be applied in various ways, such as presetting automatic participation in events linked to loyalty programs or offering additional benefits for those who maintain membership. Loss aversion is another useful principle in event publicity. Humans tend to perceive losses as more significant than gains of equal magnitude, a phenomenon known as loss aversion. Messages that emphasize what one might lose by not attending an event, such as "Don't miss the opportunity to attend this unique event" or "Only a few seats available," exploit the idea that people tend to avoid losses more than they seek equivalent gains. Loss aversion is a strong motivator, and using it in event advertising can increase participation. Kahneman and Tversky (1979). The way information is presented, known as framing, can significantly influence consumer decisions. For

¹⁵ Cialdini, R. B. (2009). *Influence: The Psychology of Persuasion*.

example, describing an event as "a unique opportunity to learn from the best minds in the field" rather than simply "a seminar" can make it more attractive. Always them; they showed that positive framing can increase perceptions of the value of an opportunity by incentivizing greater participation.

The theory behind this effect is that people react differently to different ways of presenting information, usually favoring options that are presented in a favorable light. Influencer engagement or the utilization of prior participant testimonials can potentially serve as nudges. Positive reviews can boost an event's attractiveness and credibility by establishing social proof that motivates others to go. Celebrities and influencers have the power to sway the thoughts of their following, which increases attendance. These endorsements can reduce perceived obstacles to participation, increasing the appeal and accessibility of an event. To sum up, nudges can be deliberately employed in event publicity to boost attendance and interaction. Through the application of social compliance principles, preset options, loss aversion, information framing, and influencer testimonies, event planners can respectfully and non-intrusively influence audience decisions while honoring their right to privacy. This behavioral strategy can guarantee increased event attendance and greatly enhance the efficacy of advertising campaigns.

Nudges are a potent addition to conventional marketing tactics, providing a morally sound and practical means of influencing customer decision-making. But each of these "techniques" in particular will be covered in more detail below and will form the basis of the scientific inquiry that this thesis advocates.

2.2 Analysis and Impact of Emotions in Behavioral Marketing

Emotions play a crucial role in behavioral marketing, significantly influencing consumers' purchasing decisions. By analyzing emotional responses, companies can better understand the wants and needs of their target audience, enabling them to develop more effective marketing strategies. Positive emotions can improve attitudes toward a brand, event, or company in general and increase customer loyalty, while negative emotions, can be used to create a sense of urgency or to raise awareness of certain issues. Emotions influence consumer behavior at different levels. Neuroscience has shown that purchasing decisions are not purely rational but are strongly driven by emotions. They are an essential component of decision making, providing a kind of emotional "compass" that guides choices. To make the most of the impact of emotions in marketing, companies use various analytical techniques, different for each field of application and which here, specifically, we will see referred to event advertising.

2.2.1 Measuring Effectiveness in Event Advertising

Measuring the effectiveness of event advertising is crucial for determining the success of marketing campaigns and improving future strategies. Various studies and academic texts have explored methodologies and metrics to evaluate the impact of event advertising.

Key metrics for measuring effectiveness include reach and frequency, audience engagement, and brand recall and recognition (Farris et al., 2010). These metrics allow for the assessment of the number of people reached by the advertisement, the frequency of exposure to the message, and interaction with promotional content. It is important to note that reach refers to the breadth of the audience reached, while frequency indicates the average number of exposures to the advertisement per person. Combined, these data provide a clear view of the advertising campaign's impact.

The importance of combining qualitative and quantitative approaches for effective measurement is one of the most significant aspects in this field. Hoyle suggests that qualitative feedback can be gathered through interviews and focus groups with participants, providing detailed insights into audience perceptions and reactions. Concurrently, quantitative data, including sales analysis and web traffic metrics pre- and post-event, offer an objective measure of campaign effectiveness (Hoyle, 2002). Integrating these two approaches allows for a more comprehensive and nuanced evaluation of marketing success.

The use of technological tools such as Google Analytics, CRM software, and event management platforms is essential for accurate measurement. These tools enable tracking participant behavior and analyzing real-time data, providing valuable insights into the effectiveness of advertising campaigns (Gilpin, 2013). For instance, Google Analytics can monitor web traffic generated by the event, user behavior on the site, and conversions, while CRM software can manage and analyze participant data, facilitating a deeper understanding of audience interactions and preferences.

Understanding the importance of cognitive and motivational processes that influence advertising effectiveness is also essential. Classical consumer response hierarchy models focus on the final action stage, where purchase decisions are made. It is crucial to determine whether decision-making factors are conscious or unconscious and which are more influential. This approach allows for measuring the primary drivers of consumer choice, providing critical information on how various advertising stimuli affect purchasing decisions. Cognitive processes involved in purchase decisions include perception, attention, memory, and reasoning, all influenced by various emotional and motivational factors.

Consumer motivation is often divided into two main components: liking and wanting. Liking is related to the hedonic experience and can be measured through surveys and focus groups. Neuroimaging studies have identified the orbitofrontal cortex (OFC) as crucial for linking food and other rewards to the hedonic experience (*Kringelbach, 2005*). This means that pleasure experiences are processed in this brain area, which integrates sensory information and emotional associations to evaluate reward value. Conversely, wanting represents the unconscious component of motivation, influenced by complex neural mechanisms such as the activity of the Nucleus Accumbens (NAcc) and the insula (*Knutson et al., 2001*). Wanting can be measured through neurophysiological techniques and eye-tracking, showing how consumers tend to fixate longer on desired objects. These measurements allow for a better understanding of the deep dynamics driving consumer choices.

Measuring consumer preferences and choices can be further explored through the activation of the ventromedial prefrontal cortex (vmPFC) and the ventral striatum, considered key measures of preference and choice (*Hare, Camerer, & Rangel, 2009*). For instance, fMRI studies have shown that activity in the vmPFC can predict consumer preferences for specific products, such as in the case of soft drinks (*McClure et al., 2004*). These studies revealed that the activation of these brain areas is closely related to consumers' conscious and unconscious preferences, providing a reliable indication of their purchase intentions. Additionally, frontal asymmetry combined with biometric measures such as galvanic skin response (GSR) and heart rate (HR) can accurately predict purchase choices (*Ravaja et al., 2016*). These techniques capture consumers' physiological reactions to advertising stimuli, offering a more precise view of their preferences and behaviors.

It can be stated that measuring the effectiveness of event advertising requires a multidimensional approach that combines quantitative and qualitative metrics. The aforementioned bibliographic sources provide a comprehensive guide on how to implement and interpret these measurements, ensuring that advertising campaigns not only reach their audience but also generate a lasting impact. Understanding the cognitive and motivational processes that influence consumer decisions is essential for developing more effective marketing strategies and optimizing audience interaction.

2.2.2 Persuasive Framing: Evaluating Framing Strategies in Event Advertising

The process of framing is what causes people to view issues, situations, or reality in different ways based on how the information is conveyed to them. Thus, the way that the content is presented or its "slant" might affect how the audience interprets the information. The idea of framing, often known as the "framing effect," refers to the phenomena wherein the same content can be received differently by the interlocutor when it is provided with a new "frame" (interpreted as a distinct perspective). Although framing does not intrinsically possess negative or fraudulent qualities, it can be used to subtly influence people's perceptions by attributing meanings that are suitable for the manipulating subjects to various entities, including environments, news, and situations. The framing effect is essentially a cognitive bias that causes our minds to assess, determine, or understand information according to the context in which it is given. Because of this tendency to "frame" and assess certain information within the specific context in which it is presented, it is also known as "framing addiction."

The concept of persuasive framing plays a crucial role in marketing, especially in event advertising. Framing refers to the way information is presented to the audience, thereby influencing consumer perceptions, decisions, and behaviors. Our decisions are influenced by the way information is presented, and similarly, framing strategies can shape the understanding and interpretation of an advertising message by leveraging emotional and cognitive aspects to promote a desired response.

Framing involves the selection and emphasis of certain aspects of perceived reality to make them more salient in a communication.¹⁶

This process can alter the meaning consumers attach to an event or product, influencing their participation or purchase decisions. Goffman points out that interpretive frames can be used to guide audiences toward certain conclusions and actions through the use of specific language, imagery, and narratives. There are various subcategories of framing schemes, each having a unique effect on the viewer. Both positive and negative framing are among these strategies. While negative framing draws attention to the drawbacks of missing an event, positive framing promotes the advantages and desirable aspects of going. Good framing tends to be more effective in the context of commercial campaigns because it creates good connections and raises participation intentions, as demonstrated by Levin, Schneider, and Gaeth (1998). Emotions are powerful drivers of human behavior. Event advertisements that use emotional framing seek to evoke specific feelings, such as joy, excitement, or fear. The emotions evoked by an advertisement can directly influence purchase decisions and message recall. Campaigns that harness strong emotional engagement tend to be remembered longer and generate greater impact. Using engaging stories or narratives is another effective framing strategy. Narratives help create an emotional connection and make the message more memorable. People are naturally drawn to stories, and a message framed as a narrative can be more persuasive and compelling. An event can be made to appear more favorable by drawing comparisons with other like events. One way to make an event appear more appealing is to emphasize how it provides more special advantages or experiences than others. Decisions made by customers can be greatly influenced by persuasive framing. Prospect theory, which, it should be remembered, explains how people typically make various decisions based on how possibilities are presented—as gains or losses—is relevant to event promotion, since the presentation of an event can affect how many people attend.

Both qualitative and quantitative methodologies must be applied in order to assess the efficacy of framing techniques in event marketing. Furthermore, social media sentiment analysis methods can offer insightful information on the many ways that audiences interpret and respond to messages that are presented in a certain way. Music festival promotional strategies are an excellent illustration of how persuasive framing can be used to great effect. Positive and sentimental framing is frequently used for these occasions, highlighting the excitement and delight of the occasion, the chance to witness well-known performers perform live, and the sense of camaraderie that develops among guests. On the other hand, advertisements that draw attention to what you could miss if you don't go (such as the event's uniqueness or once-in-a-lifetime opportunities) can generate a sense of urgency

¹⁶ Goffman, E. (1974). *Frame Analysis: An Essay on the Organization of Experience*.

and encourage quick ticket purchases. Professional conferences are another example; they frequently employ comparative framing to show how their gathering provides greater possibilities for professional development, education, and networking than other industry conferences.

This kind of framing helps position the event as the best choice for professionals seeking career advancement. Conclusively, effective framing is a potent tactic in event promotion. Framing strategies include narrative, comparison, emotional, positive, and negative framing, among others, can have a big impact on how consumers perceive products and make decisions. Assessing the efficacy of these tactics necessitates a multifaceted strategy that integrates qualitative and quantitative techniques. By knowing how various forms of framing affect consumer behavior, marketers can maximize the impact of events and develop more successful advertising campaigns.

2.4 Engagement Techniques: Language and Social Testimonials

In the realm of event advertising, engagement techniques are paramount for capturing audience attention and fostering participation. Through the adept use of language and imagery, event organizers can forge an emotional connection with their target demographic, rendering the event both informative and compelling. Two particularly effective strategies in this context are the utilization of persuasive language and the employment of endorsements from celebrities and influencers.

Persuasive language involves the strategic use of emotionally evocative wording, the creation of urgency, and the clear articulation of the event's benefits in an engaging manner. This technique leverages carefully selected words and phrases to spark interest and desire in the audience, encouraging attendance. Simultaneously, the use of testimonials from celebrities and influencers can significantly boost an event's allure. Celebrities and influencers, with their extensive fanbases, command trust and influence, and their endorsements can extend the event's reach and enhance its credibility. When these techniques are skillfully applied, they can dramatically increase the appeal and success of events.

2.4.1 Using persuasive language to engage audiences

The use of persuasive language is a key technique for engaging the audience and stimulating interest in an event. Careful choice of words and phrases can determine the effectiveness of an advertising message versus one that goes unnoticed. Currently, consumers are considered not only more astute and aware, but also able to decipher the different semantic levels of a message, which is becoming increasingly subtle, refined and complex. Therefore, advertisers operate in a saturated communication environment, creating new suggestions through the single or combined use of different codes (visual and verbal, as well as tonal and gestural). They draw on content belonging to the interlocutor's cultural universe, reinterpreting and adapting it for their own purposes. In this process of construction, the use of rhetorical strategies as the art of argumentation constitutes one of the most interesting approaches to the study of advertising language.

Successful marketing campaigns depend on an understanding of the consumer's purchasing decision-making process. Numerous elements influence the sentiment of consumers. Therefore, a marketing

specialist needs to determine a "window of persuasion" to close the deal in order to boost conversion rates. In the case of television or radio commercials, additional codes are added to the verbal and visual codes, which are closely related, to the tone and gestural codes in the advertising message. Most advertisements have both a textual and iconic element. The iconic, or visual, element frequently serves as the message's central focus, tasked with grabbing the reader's interest and piquing their curiosity. It could be an exact replica of the object being sold, possibly even in its packing or it could be a semantic, symbolic, or associative allusion to it (Calabrese S., 2012,). Regardless, the image takes on a role of focusing attention and providing content, while the words tends to become less and less important.

The textual component is divided into several parts, not necessarily all present within the advertisement:

- *Headline or Title*: This constitutes the initial message, usually closely connected with the visual. Generally, it is characterized by larger dimensions compared to the rest of the text and may be accompanied by a subtitle that tends to reinforce or clarify its content.
- *Bodycopy or Body*: This represents the actual text of the advertisement, longer and more detailed, syntactically more complex, with a referential or pseudo-referential role. It is used to provide more detailed information about the product/service, intended only for those who are genuinely interested.
- *Payoff and Baseline*: This is the concluding phrase, often referring more to the brand than to the product. It is usually positioned at the bottom right, next to the brand or a repeated representation of the product.
- *Brand (or Trademark)*: This includes a graphic component (logo) and a verbal component (brand name), which sometimes merge into the creation of a logotype, where the verbal component also assumes the graphic one.

Persuasive language in marketing is essential for influencing audience decisions and directing their behavior. Emotions are a powerful persuasive tool. People often make decisions based on how they feel rather than facts and logic. Using emotions such as happiness, fear, nostalgia, or longing can make the message more engaging and memorable. For example, a campaign that evokes happiness through images of familiar moments can create a strong emotional connection with the audience. Telling stories is an effective way to capture attention and create an emotional connection. Stories make the brand message more human and understandable, helping the audience see how the product

or service can improve their lives. A good example of storytelling might be telling how a product transformed the life of a satisfied customer, making the story personal and relevant.

A product's perceived scarcity may make consumers want it more. People are more inclined to desire something if it appears to be limited or available for a little period of time. The foundation of reciprocity is the notion that individuals typically return favors. Giving away something valuable, like a trial or guide, can instill a sense of duty in the audience, encouraging them to repay the favor by buying the goods. This idea functions effectively, for instance, when unique content or free counsel are provided. Humans have a tendency to follow others. Demonstrating that other people use and like the product—especially those who resemble the target audience—can have a favorable impact on buying decisions. Commonly used resources for displaying social proof include endorsements, reviews, and success stories. People have a tendency to trust authorities and specialists. Displaying testimonials or advice from professionals in the field can help build the product's credibility and confidence.

Persuasive language also influences the five senses:

- *Sight*: Consumers are attracted to the aesthetics of a product. The visual system is sensitive to color, contrast, and movement stimuli. Each color evokes a specific emotional reaction and is associated with a particular taste.
- *Taste*: This is crucial for consumers, which is why companies conduct taste tests or "blind tests" to assess people's preferences. According to statistics, 90% of what we perceive through taste depends on smell, sight, and the way a dish is served.
- *Smell*: Odors can evoke memories and elicit emotions, which is why companies adopt persuasive marketing strategies based on specific scents.
- *Hearing*: Sound and rhythm influence the customer's mood and the duration of their shopping experience. The repetition of musical sequences (jingles) is often used to reinforce familiarity with a product.
- *Touch*: This allows consumers to evaluate the quality of products. For example, when selecting fruit or vegetables, touch is used to check for freshness; when choosing clothing, the quality of the fabric is assessed.

Persuasive language is thus a communication technique used in marketing to influence audience decisions and direct their behavior toward a specific goal, such as the purchase of a product or service. It is based on the strategic use of words, phrases, images and stories that evoke emotions, create connections and elicit desired reactions.

- **Choice of Language: smart notifications that take advantage of scarcity**

The utilization of smart notifications that capitalize on the concept of scarcity is a successful strategy for influencing consumer behavior. According to the psychological theory of scarcity, people prefer to give more importance to things that they believe are uncommon or only available temporarily. The temptation to purchase a product or go to an event might be greatly heightened by the scarcity principle. (2009, Cialdini). The latter also claims that if people believe something to be uncommon or hard to come by, they would be more receptive to persuasive arguments. Put another way, we are drawn to things that are uncommon or hard to come by.

For instance, people can find a product that is only available for a short time to be more appealing. This suggests that for a message or offer to be effective, it needs to be special or uncommon. The notion behind the principle is straightforward yet effective: opportunities or things that are seen as scarce or challenging to attain naturally gain appeal. Customers are prompted to make judgments about purchases more rapidly because of the sense of urgency created by this time limit. Therefore, there is scarcity in the sense of time. Scarcity is perceived by our minds as an indication of inherent value. We often view items as more valuable and distinctive when they are uncommon or challenging to obtain. This has the potential to greatly affect our shopping decisions and encourage more impulsive behavior. Companies can strategically exploit various forms of scarcity in the context of neuromarketing to affect consumer behavior. Every kind of scarcity can be customized to meet the unique marketing requirements of a business.

1. *Temporal Scarcity*: This implies a time limit within which an opportunity or offer is available. Classic examples are "Today Only" promotions or "While Supplies Last," which exploit this type of scarcity to prompt quick purchasing decisions. Temporal scarcity creates a sense of urgency, often associated with FOMO (Fear of Missing Out), driving consumers to act immediately to avoid missing an opportunity.
2. *Quantity Scarcity*: This refers to the limited availability of a product or opportunity. The notion that a product is "limited edition" or that there are few units available encourages consumers to perceive it as valuable and make an immediate purchase.
3. *Social Scarcity*: This leverages the human desire to conform and belong to a group. The wish to be part of a privileged group pushes consumers to purchase in order to be included in such a group.

4. *Information Scarcity*: This occurs when a company deliberately limits the amount of information available about a product, service, or opportunity. This type of scarcity arouses curiosity and interest, prompting consumers to investigate further and eagerly anticipate the chance to purchase.
5. *Access Scarcity*: This refers to limiting access to a product or service to a specific group or a restricted number of people. This technique is closely related to both quantitative scarcity (limited number of spots) and social scarcity (access reserved for certain categories of people).

2.4.2 Analyzing the impact of celebrity and influencer testimonials in promoting events

Testimonials from celebrities and influencers are powerful tools in event promotion. People tend to trust and follow the advice of individuals they admire or consider experts in a particular field. The use of celebrities and influencers in event advertising can increase the credibility and appeal of the promotional message. Celebrities transfer their personal attributes to the products they promote, making those products more desirable. (McCracken, 1989). When a celebrity or influencer promotes an event, their endorsement can serve as a powerful persuasive lever, especially if their audience perceives an authentic connection to the event itself. According to social intelligence theory, socialization is part of human nature. Individuals feel the need to interact with each other, and this makes for well-organized groups. Before the Internet era, people asked for help from friends who were part of their traditional social network when they needed to make decisions. Today, social networking services allow people to connect with each other quickly and cheaply, and meanwhile they can manage their social influence through these new platforms, such as Facebook. According to previous studies, online word-of-mouth influence has increased by 50 percent, with lower costs and a wider reach, and as a result many companies today focus on so-called influencers in order to increase their reputation and sales. The ability to influence others or create authority in a subtle or indirect way is defined by Merriam-Webster as influence. It can be possessed by people or groups and has the power to influence or reinforce other people's attitudes, beliefs, and actions. Influencers that exhibit positive and culturally desirable attributes are effective in reinforcing companies through endorsements, as celebrities bring value to the brands they promote. Products gain the symbolic power of online identities. When a user gains notoriety on Instagram, their cultural values are

integrated into their persona and shared in all of their posts, demonstrating their sense of style in terms of appearance, public persona, and destinations visited. If traditional celebrities are able to derive their symbolic value from what they have developed in classic media, Instagram influencers derive it based on the personal brands they have created through posts and stories, the events they have been able to attend, and the companies they have associated with. When celebrities are able to build warm and personal relationships with their audience, then they will be perceived as more trustworthy. This also depends on how honest, credible, and trustworthy the source is seen to be. Receiving messages from personalities who seem similar to themselves makes them more effective, because they are perceived as targeting a so-called "normal" audience. As a result, it decreases the feeling of social distance, which weakens the attractiveness of a celebrity. The moment viewers perceive influencers as trustworthy; they will be more welcoming toward their fashion recommendations and the brands or products they sponsor. On the other hand, when well-known celebrities feature in commercials for different companies, the general public can recognize their commercial intent and doesn't feel any emotional connection to the brand. Testimonials from celebrities and influencers operate via a number of psychological processes. First, according to the authority principle, individuals usually heed the counsel of those in positions of authority. Furthermore, the social reproof principle suggests that people tend to act in ways that are consistent with others they look up to or believe to be similar to them. Testimonials can also take advantage of the affinity principle, which states that people are more likely to be influenced by individuals with whom they feel a personal connection. Influencers, because of their ability to build authentic relationships with audiences through personal and engaging content, can use this connection to promote events effectively. To assess the effectiveness of celebrity and influencer testimonials, quantitative metrics such as the number of views, likes, comments, and shares on social media can be used. In addition, post-event surveys can provide qualitative feedback on why participants signed up or attended the event. Academic studies have shown that the effectiveness of testimonials depends on factors such as the congruence between the testimonial and the event, the perceived authenticity of the message, and the audience's identification with the testimonial. (*Erdogan 1999*)

Therefore, careful selection of celebrities and influencers best suited to the event's target audience is critical to maximizing the impact of testimonials. To sum up, compelling language combined with endorsements from influencers and celebrities are effective engagement strategies for event PR. Statements that play on feelings of urgency and scarcity might spur listeners to act quickly, and endorsements from well-known and regarded people can lend the event more legitimacy and appeal. To optimize promotional efforts and maximize the impact of events, a thorough examination of audience reactions and success metrics is necessary to evaluate the effectiveness of these techniques.

CHAPTER 3: Neuromarketing and commercials, an analysis of nudges and cognitive biases in event sponsorship: empirical analysis and case study

In this chapter, data collected through empirical analysis will be examined and a specific case study presented. The goal is to provide an in-depth understanding of the dynamics being examined, using quantitative and qualitative methods. The empirical analysis will identify significant trends and correlations, while the case study will provide a detailed and contextual perspective on a concrete example. These combined approaches will provide a comprehensive and multifaceted view of the phenomenon under study. After addressing in the first two chapters the concept of behavioral economics, neuromarketing with respect to the use of nudges and cognitive biases at the theoretical level, this third chapter discusses how they influence consumer decisions in advertising, with a practical analysis focused on event sponsorship. In particular, the case of the advertising of the end-of-year party organized by Luiss Guido Carli University will be examined. Neuromarketing and advertising are increasingly integrated to optimize brands' communication strategies. The synergy between these two fields is revolutionizing modern advertising, enabling a deeper understanding of how consumer behaviors and decisions can be influenced through techniques based on nudges and cognitive biases.

Nudges, or "behavioral nudges" that direct people toward better decisions without restricting freedom of choice, are becoming fundamental tools in advertising design. Event advertising, such as the Luiss Guido Carli University end-of-year party, provides an ideal context for exploring how these techniques can be used to maximize communication effectiveness.

Martin Lindstrom, a pioneer in neuromarketing, has observed a growing crisis in traditional advertising, with a significant decline in consumer attention to commercials. This phenomenon is partly attributable to the increasing saturation of the advertising market and the difficulty of capturing attention in an increasingly crowded media environment. However, the application of neuromarketing techniques, such as nudges, has been shown to improve the effectiveness of ads. For example, in the context of event advertising, nudges can be used to direct students' decisions toward attending the event. Techniques such as presenting predefined options or using messages that highlight the number of participants already registered can positively influence the decision to attend. Advertising university events, such as Luiss Guido Carli University's end-of-year party, presents a unique challenge. Advertising campaigns must capture students' attention and stimulate their interest in a competitive environment. For this reason, neuromarketing techniques are particularly relevant.

1. *Eye-Tracking*: Eye-tracking is a key tool for evaluating the effectiveness of advertisements. It allows you to analyze how and where users focus their attention on advertising elements. By applying eye-tracking to advertising for university events, it is possible to understand which visual elements attract students' attention the most and optimize message presentation to improve engagement.
2. *Emotional Response Analysis*: Evaluating consumers' emotional responses is crucial to understanding the effectiveness of an advertising campaign. Through techniques such as analyzing facial expressions and measuring physiological responses, it is possible to assess how advertising messages affect students' emotions and, consequently, their propensity to participate in the event.
3. *Measurement of Message Memorization*: A key indicator of advertising success is message memorization. In the case of event advertising, it is essential that the message regarding the end-of-year party be easily remembered by students. Neuromarketing techniques help test whether the advertising message was effective in leaving a lasting impression.

Despite the benefits, there are challenges associated with using neuromarketing in advertising. Traditional market research methods, such as focus groups and questionnaires, can often fail to accurately reflect true consumer preferences. As John Wanamaker pointed out, "Half my budget on advertising is wasted. The problem is that I don't know which half it is." Neuromarketing techniques, such as brain measurements, provide more reliable and concrete data than traditional methods, reducing the risk of wasting resources on ineffective strategies.

In summary, the integration of nudges and cognitive biases into advertising for university events represents an innovative frontier in neuromarketing. Analyzing how these techniques influence consumer decisions can provide valuable insights into how to improve the participation and effectiveness of advertising campaigns. In the specific case of the Luiss Guido Carli University end-of-year party, the application of these techniques could reveal new strategies for optimizing communication and maximizing student engagement.

3.1 Research Methodology

This section will cover the precise study objectives as well as the full design of the experimental situations used to evaluate the hypotheses. The participant selection technique will then be discussed in detail, as will the demographic and pertinent data of those who participated in the study. Finally, an in-depth explanation of the data collection methods and methodologies will be offered, with a focus on how these tools were chosen to assure the accuracy and validity of the results.

3.1.1 Research Objectives and Design of Experimental Scenarios

The primary objective of this experimental analysis is to understand the extent to which and the ways in which behavioral cues (nudges) and cognitive biases influence people's decisions through advertising in the context of event sponsorship. In particular, this investigation focuses on the specific case of the advertising of the end-of-year party organized by Luiss Guido Carli University. To pursue this objective, a detailed collection of general data on respondents was conducted, including demographic, psychographic and behavioral information, with the intention of assessing how advertising with nudges or bias specifically influence the youth population. This research aims to investigate the influence of the use of bias and nudges in event advertising on the level of involvement of individuals, with particular reference to the students of Luiss Guido Carli University on the occasion of the advertising of the end of year party of the university. In particular, the aim is to analyse how the demographic characteristics of students (age, gender, socio-economic status) can modulate the effect of that bias and nudges on their involvement.

Variables of the Research:

- *Dependent variable (DV):* Level of involvement of individuals in participating in advertised events.
- *Independent variable (IV):* Use of bias and nudges in event advertising (presence vs absence).
- *Moderating variable (MV):* Familiarity with the event

The dependent variable (DV) in this study represents the "level of involvement of individuals in participating in advertised events." It is a key measure of behavioral and attitudinal response, assessing how interested or motivated individuals are to attend the event after viewing the advertisement. Scientifically, involvement can be defined as a multidimensional construct encompassing cognitive, emotional, and behavioral components. It reflects the persuasive effectiveness of the advertisement, as a high level of involvement suggests a strong activation of the consumer's cognitive and emotional resources, which may translate into a positive behavioral intention, such as purchasing a ticket or attending the event. Involvement can be measured using Likert scales that assess the intensity of interest, intention to participate, and the emotions elicited by the advertisement.

The independent variable (IV) is represented by the use of "bias" and "nudges" techniques in event advertisements, differentiating between their presence and absence. Cognitive biases are systematic distortions in thinking that influence individuals' decisions and judgments. Nudges, on the other hand, are subtle interventions that predictably alter behavior without forbidding options or significantly changing economic incentives. These techniques influence consumer behavior by manipulating psychological aspects such as attention, memory, and emotions, enhancing the effectiveness of the advertisement.

The moderating variable (MV) is the "participants' familiarity with the advertised event." A moderating variable influences the direction or strength of the relationship between the independent and dependent variables. In this context, familiarity refers to the participants' prior knowledge or experience regarding the event. It can moderate the effect of bias and nudges techniques on individuals' involvement in several ways:

- **Persuasive Resistance:** Individuals already familiar with the event may have pre-existing opinions that make them less susceptible to new information presented in advertisements, thereby reducing the impact of bias and nudges.
- **Recognition and Affinity:** Conversely, higher familiarity could enhance the effect of persuasive techniques if individuals already have a positive predisposition toward the event, facilitating a favorable interpretation of the presented information.

In summary, familiarity can either amplify or attenuate the impact of bias and nudges techniques, making it a critical variable for understanding the dynamics of advertising persuasion and subsequent consumer behavior.

○ *Image Selection for the Experiment: Pre-Test and Image Selection Process*

This research will be conducted on the students of the Luiss Guido Carli University and will have as its object of study the advertising of the university's end of year party. Through an experimental design, the effectiveness of bias and nudges in event advertising in promoting student involvement will be tested. In addition, we will examine how the demographic characteristics of students can influence this relationship, allowing for a better understanding of the role of these moderating variables. The data collected included age, gender, course of study, interest in college events, and propensity to participate in them. To further investigate the influence of behavioral cues and biases in advertising, four separate experimental scenarios were designed. Each scenario involved the presentation of advertising images with both nudges and bias and without them, leading to a total of eight separate images.

The nudges used ranged from attention to design to exclusive prizes for participants designed to stimulate interest and participation. These images were then divided into two separate blocks: the first block included the images with them, while the second block included those without. Within the questionnaire, only one of the two blocks was shown to participants, with the images presented in random order. This methodological approach was chosen to isolate and measure the specific effect of advertising with nudges or bias, allowing a direct comparison of participants' responses exposed to different experimental conditions. Image randomization was used to reduce the risk of bias due to the order of presentation, ensuring that the results obtained more accurately reflected the influence of advertising with nudges or bias.

This method controlled for confounding variables and ensured that the observed differences in responses were attributable to the bias themselves rather than other factors. In summary, this experimental analysis aims to provide a detailed and accurate understanding of how behavioral cues and cognitive biases can be exploited in advertising to influence young people's decisions, with a particular focus on advertising with nudges or bias in the context of college event sponsorship.

The selection of images for the four experimental scenarios was driven by the need to test the effectiveness of “visual nudges” and various “cognitive biases” in influencing behavior.

Each scenario included two variants: one incorporating the specific nudge or bias and one without, in order to isolate the impact of these elements on participants' decisions. Prior to the main experiment, an informal pre-test was conducted to assess the effectiveness of the selected images. Before initiating the main study, an informal pre-test was conducted with a small sample of LUISS students (n=20) to evaluate their reactions to various images and designs. Participants were shown a series of images

that varied in levels of visual engagement, emotional appeal, and design complexity. The primary goal of the pre-test was to identify which visual elements were most effective in capturing attention, eliciting emotions, or creating a sense of urgency or authority. Based on the feedback received, the images used in the experiment were refined to ensure that each set accurately represented the intended nudge or bias. Before proceeding with the main study, an informal pre-test was conducted involving a small sample of LUISS students (n=20).

This pre-test was essential to evaluate participants' spontaneous and intuitive reactions to different images and designs, with the aim of refining the visual stimuli that would be used in the final experiment. The decision to include a pre-test stemmed from the need to understand how students responded to various types of visual stimuli in terms of engagement, emotional impact, and attention-grabbing potential. Although informal in nature, the pre-test provided valuable insights to optimize and fine-tune the visual elements prior to the main experiment. During the pre-test, participants were shown a range of images that varied in terms of graphical complexity, visual and emotional appeal, and design sophistication. Some images were deliberately crafted to capture attention using specific visual techniques, while others were intentionally more simplistic and neutral.

This contrast between the images allowed for an exploration of how students reacted to different visual stimuli and the emotional or psychological impact these images had on them.

The primary goal of the pre-test was to accurately identify which images were most effective in eliciting specific behavioral responses. Some of the criteria evaluated included the images' ability to quickly and effectively capture attention, their strength in evoking emotions relevant to the context of the event (such as excitement, nostalgia, or a sense of belonging), and their capacity to create a sense of urgency or authority—key elements for successful marketing and promotional strategies. The feedback collected from participants during this phase was crucial for selecting the final images. It allowed researchers to understand which images made a lasting impression and which were perceived as less interesting or persuasive.

For instance, some participants reported that images with vibrant colors and visually appealing designs were far more effective in capturing their attention than neutral and minimalist ones. Similarly, images that evoked positive emotional memories or desirable social situations seemed to generate a stronger emotional response, increasing interest in the advertised event. On the other hand, some participants found certain designs too complex or overloaded with information, leading to a decrease in engagement. Based on these insights, the images selected for the main study were refined and improved. Elements that caused confusion or distraction were removed, while those that stimulated a more immediate and positive response were emphasized. This process ensured that each

set of images accurately represented the specific nudge or bias intended for investigation, minimizing the risk of confounding effects. The four experimental scenarios were carefully selected to explore different “behavioral triggers”. Each scenario tested a different psychological mechanism: “visual engagement” (stimulated through attractive design and vibrant graphics), “emotional response” (evoked by images with strong affective meaning), “scarcity” (induced by time-sensitive and limited offers), and “authority” (leveraged through associations with celebrities or influencers).

The decision to isolate these triggers allowed for a more precise measurement of the specific effect each mechanism had on participant behavior. In summary, the pre-test played a critical role in refining the visual design of the images, ensuring they were effective in meeting the study’s objectives. The main focus of the experiment was to explore the impact of “visual nudges” and “cognitive biases” on decision-making behavior.

The systematic approach taken in the pre-test ensured that the final images were capable of maximizing the effectiveness of the experimental stimuli while providing participants with a consistent and realistic experience during the study.

4 Scenarios:

1) VISUAL NUDGE: CHOICE ARCHITECTURE PACKAGING AND PRODUCT DESIGN

- With Visual Nudge: *“Imagine receiving a colorful and visually appealing flyer for the LUISS University party, with an innovative design using modern graphics and a unique style that immediately grabs your attention.”*



Figure 4: presence visual nudge

Packaging and product design influence how people perceive advertising events.

In the context of this study, the LUISS university party flyer was created using vivid and current graphic elements to capture the attention of recipients. The flyer's novel design, which incorporates brilliant colors and a distinct style, not only makes it physically appealing, but also attempts to pique potential participants' interest and curiosity. This form of visual nudge is intended to investigate how

aesthetic and design components affect the decision to attend an event. Previous research has demonstrated that visual perception and appealing design can dramatically improve the interest and engagement of target audiences. In this case, the goal is to determine whether an appealing flyer design might operate as a push, prompting students to confirm their participation in the party. Comparison with the flyer without visual nudge will allow us to isolate the design's specific effect on participants' decision-making behavior.

- *Without Visual Nudge: “Imagine receiving a simple flyer for the LUISS University party, with a standard design and neutral colors with no special graphic elements.”*



Figure 5: absence visual nudge

In this case, the LUISS University party flyer was created using a minimalist and conventional design. The flyer is designed in neutral hues and lacks any distinguishing or eye-catching visual elements. This design choice is intended to reflect a scenario in which no visual nudges were employed to capture the target audience's attention. The objective of this scenario is to evaluate the effect of the absence of visual nudge on students' participation decisions. Unlike the eye-catching flyer described

in the previous scenario, this neutral and simple design does not take advantage of aesthetic elements to influence potential participants' perceptions. The lack of bright colors and innovative graphics makes the flyer less visually stimulating, allowing the impact of visual attractiveness on decision-making behavior to be isolated and measured. Visual presentation can significantly influence consumer choice. However, it is equally important to understand how neutral design, which does not use such nudges, can influence decisions. This minimalist scenario serves as a control, allowing a direct comparison with the more elaborate and visually appealing flyer.

2) AFFECTIVITY HEURISTICS: USE OF EVOCATIVE IMAGES AND SYMBOLS

- *With Affectivity Heuristics: “Imagine that the advertisement includes vivid and memorable images of past college holidays, with students having fun, that could evoke happy memories or strong emotions related to these events.”*



Figure 6: presence affectivity heuristics

Against this setting, the LUISS university party advertisement is intended to feature evocative and interesting photographs from prior parties. The photos depict students having fun, dancing, and mingling, capturing moments of joy and friendship.

This form of visual content is intended to generate powerful and good feelings, which may evoke happy memories and deepen the emotional connection to the advertised event. The purpose of using evocative images and symbols is to elicit an emotional response from the target audience. Emotions play an important part in decision making, and visuals that elicit happiness and nostalgia can be effective nudges, causing pupils to wish to replicate those experiences. This approach harnesses the power of emotions to increase the attractiveness of the event and incentivize participation. In addition, the use of images showing students having fun and socializing exploits the concept of social proof. Social proof is a psychological principle that people tend to conform to the actions of others, especially in situations of uncertainty. By showing pictures of other students actively participating in and enjoying parties, the advertisement implicitly suggests that the event is popular and enjoyed by the student community. This may further encourage viewers of the flyer to participate, wanting to be part of a shared and socially approved experience. The inclusion of social proof in advertising not only enhances the emotional appeal of the event, but also increases the perceived validity and desirability of the event itself. When students see that their peers enjoy and participate, they are more likely to want to be part of that experience, reducing uncertainty and increasing the likelihood of adherence.

- *Without Affectivity Heuristics: “Imagine that the advertisement shows only text with details of the event, without images or symbols that evoke specific emotions or memories.”*



Figure 7: absence affectivity heuristics

Against this backdrop, the LUISS university party advertisement is designed to be minimalist and devoid of visual or emotional elements. The advertisement consists solely of text, providing details of the event such as the date, time, and location, without the use of images or symbols that might evoke specific emotions or memories. This approach focuses solely on conveying information, without attempting to emotionally influence recipients.

The absence of evocative images and emotional symbols is designed to assess how the lack of visual and affective stimuli affects the decision to participate. Unlike the scenario with the use of the affectivity heuristic, which uses vivid images to create an emotional connection, this sober and informative design serves as a control to measure the effect of affective heuristics on participants' choices.

3) SCARCITY BIAS: EXCLUSIVE OFFER, DEFAULT OPTION THROUGH A "DIRECT CALL TO ACTION"

- *With Scarcity Bias: "The advertisement promotes an exclusive offer: 'If you confirm your participation within 24 hours and are among the first 40, you will get a chance to meet a celebrity during the event.'" The time constraint and limited offer 'if you are among the first to confirm, you will receive 40 minutes to stand next to the star of the evening' should create a sense of urgency and exclusivity, motivating the individual to act quickly for fear of missing out on a once-in-a-lifetime experience."*



Figure 8: presence scarcity bias

This scenario applies the principle of scarcity bias, a psychological strategy that exploits the perception of rarity and urgency to motivate consumer behavior. The LUISS university party advertisement uses an exclusive offer and limited time to confirm participation, creating a situation

in which recipients feel pressure to act quickly. The promise of a unique opportunity, such as meeting a star of the evening, further increases the attractiveness of the offer. The scarcity bias works on several psychological levers. First of all, the offer limited in time (confirmation within 24 hours) and number of participants (the first 40) creates a sense of urgency that prompts people to make quick decisions to avoid missing the opportunity. In addition, the possibility of meeting a celebrity during the event adds value to the experience, making the offer even more irresistible. This type of bias is particularly effective in the context of events, where exclusivity and rarity are key factors in attracting participation. The scarcity bias-based nudge strategy is designed to increase the likelihood that students will confirm their participation quickly, improving overall engagement and event success.

- *Without Scarcity Bias: “The advertisement provides information about the event, but does not mention any special offer or urgency in confirming attendance.”*



Figure 9: absence scarcity bias

Against this backdrop, the LUISS university party advertisement presents a neutral and informative approach, providing only the essential details of the event, such as the date, time and location. There are no mentions of special offers or urgency in confirming attendance. This approach avoids any form of additional pressure or perceptual manipulation through scarcity. The presentation of information without direct influencing techniques allows one to assess how recipients react in the absence of stimuli that create urgency or exclusivity. This scenario serves as a control to compare the effect of strategies based on scarcity bias, such as offering exclusive meetings with celebrities or time limitations.

4) HEURISTICS OF AUTHORITY: CELEBRITY AND INFLUENCER ENDORSEMENT

- *With Heuristic of Authority: “Promotional material shows a celebrity well known among students ready to be part of the event.”*

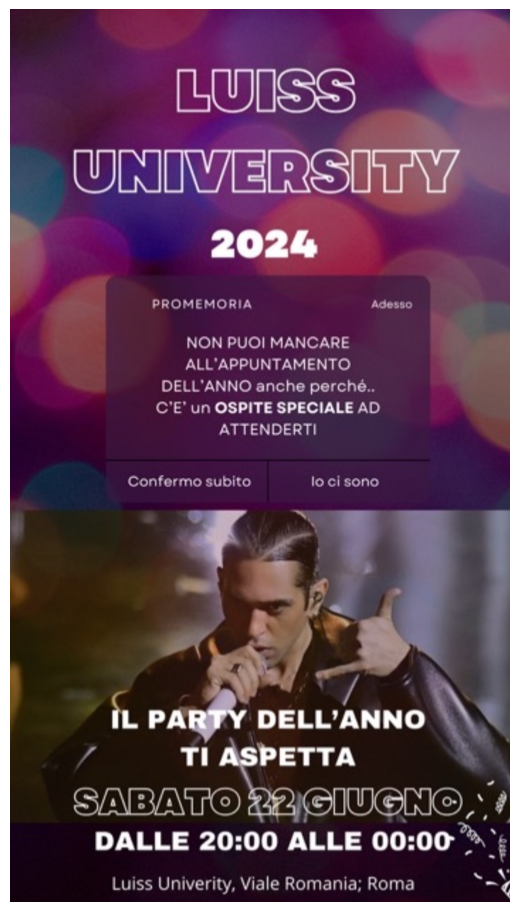


Figure 10: presence heuristics of authority

In this case, the advertisement for the LUISS university party features a celebrity or influencer who is well-known and popular among students. The appearance of a celebrity photo, such as that of a musician, actor, or influencer, serves as a reference figure for the public to trust or aspire to. The event's link with an authoritative figure should improve its perceived appeal and validity. The authority heuristic is based on the psychological notion that people are more likely to follow advice or attend events hosted by figures they regard as authoritative or appreciate. Celebrity, in this situation, not only draws attention but also adds a sense of status and credibility to the event, boosting the possibility that students will attend

- *Without Heuristic of Authority: “The advertisement provides information about the event but does not mention any celebrities or influencers who will be attending.”*



Figure 11: absence heuristics of authority

In this case, the LUISS university party marketing just mentions the event rather than employing celebrity or influencer images. There are no elements that use authority heuristics to boost the event's attraction. This method allows us to assess the impact of the lack of endorsement on participation decisions. The absence of a photo that immediately refers renowned persons separates the impact of simple information from the attraction supplied by identification with authority figures. By comparing this situation to the one that includes the endorsement, we may assess the effectiveness of employing celebrity and influencer photos in event advertising.

These images were then shown to participants in random order within the questionnaire. This experimental approach makes it possible to isolate and measure the specific effect of advertising with nudge by comparing the responses of participants exposed to different conditions. The random ordering of the images helps reduce the risk of presentation order bias, ensuring that the results obtained more accurately reflect the influence of advertising with bias and nudges.

3.1.2 Selection and data of participants

The selection of participants for this experimental analysis was done with well-defined and rigorous criteria to ensure the validity and relevance of the results obtained. The study sample was composed exclusively of students currently enrolled at Luiss Guido Carli University or recent graduates who had recently completed their academic studies at the same institution. This methodological choice was motivated by the need to obtain a homogeneous and highly representative sample of the specific target of the advertising campaign under consideration, namely the end-of-year party organized by the university itself. This approach has several advantages. First, it ensures that all participants have a common and shared experience in terms of academic and cultural context. Indeed, students and recent graduates of Luiss Guido Carli are exposed to similar social, cultural and educational dynamics, which facilitates the interpretation of the collected data and reduces the possibility of confounding variables. For example, factors such as educational level, socioeconomic background and future expectations tend to be more uniform within this group than in a more heterogeneous sample. In addition, selecting participants from the same institution allows for more precise isolation and analysis of the specific effect of targeted advertising on a well-defined group. The end-of-year party represents a significant event in the academic and social calendar of Luiss students, which makes their reactions to advertising particularly relevant for nudge and bias analysis. Understanding how these students respond to different types of advertising incentives provides valuable information for improving future marketing strategies, not only for similar events, but also for other university-sponsored initiatives. Choosing a homogeneous sample also facilitates data collection and analysis. A sample composed exclusively of Luiss students and recent graduates reduces data variability, making emerging patterns and trends clearer. This approach is particularly useful when analyzing complex psychological and behavioral phenomena, such as the influence of nudges and biases in event attendance decisions. To ensure maximum representativeness and reliability of the sample, several recruitment strategies were used. These included sending invites to participate in the questionnaire via official university channels such academic mailing lists, social clubs, and internal communication platforms. Informational seminars were also held to discuss the value of student participation and answer any concerns they had about the research. Finally, great emphasis was devoted to sample diversity, taking into account variables such as course of study, enrollment year, and gender. This technique produced a sample that, while homogeneous, reflects the richness and diversity of the Luiss Guido Carli student body. With these criteria, the research can yield solid and generalizable results, adding to a deeper understanding of the effectiveness of nudge and bias-based advertising in the university context.

Sample Size

The sample size is a central aspect to ensure the statistical significance and generalizability of the results. For this study, the sample consisted of a representative number of students currently enrolled at Luiss Guido Carli University and recent graduates who have recently completed their studies at the same institution. The exact size of the sample was determined to ensure that the number of participants was sufficient to provide useful and robust data, while maintaining a balance between statistical precision and logistical feasibility.

In quantitative terms, the selected sample reflects a sufficiently large number of participants to allow for an in-depth analysis, particularly concerning the research objectives, which focus on the effectiveness of advertising based on nudges and biases. A smaller sample could have exposed the research to the risk of not detecting certain relevant trends or of obtaining results that are not sufficiently generalizable. Therefore, the sample size was chosen to ensure adequate statistical power while considering the specificity of the target population and the academic context.

Demographic Characteristics of the Sample

While remaining within a homogeneous framework, exclusively represented by students and recent graduates of Luiss Guido Carli, particular attention was given to the internal diversity of the sample. Several demographic variables were considered to ensure that, within this homogeneous group, there were nuances representative of the different experiences lived by the students of the university. These variables include:

- **Age**

The selection included students from different academic years, aiming to represent both younger students, in their first or second year of studies, as well as more advanced students or recent graduates. This choice allows for the evaluation of possible differences in advertising responses between those at the beginning of their academic journey and those nearing the end or already integrated into the workforce. This variable can significantly influence the decision to participate in university events,

as students closer to graduation may have different motivations and expectations compared to those in the early years.

Seleziona la tua età

		Frequenza	Percentuale	Percentuale valida	Percentuale cumulativa
Valido	18-21	22	9.7	9.7	9.7
	22-24	151	66.8	66.8	76.5
	25-28	53	23.5	23.5	100.0
	Totale	226	100.0	100.0	

Figure 12

The table illustrates the age distribution of the survey participants, divided into three groups: 18-21 years, 22-24 years, and 25-28 years. Notably, the majority of participants belong to the intermediate age bracket (22-24 years), representing more than half of the total sample. This concentration of participants in a single age range can be attributed to several factors related to the academic cycle, as most students fall within the final years of their bachelor's degree or the early stages of their master's degree.

Young adults, aged 25-28, make up almost a quarter of the sample. This group primarily consists of master's students or recent graduates who have recently completed their academic studies. Their presence in the sample is particularly relevant as it reflects a group with more advanced experiences, both academically and, in some cases, professionally. This group may respond to advertising stimuli differently compared to younger participants. Lastly, the 18-21 age bracket, which represents the youngest participants, constitutes a minority of the sample. This group includes mostly students in the early years of their university studies, still at the beginning of their academic journey. Although less represented, this age group can provide important insights into how younger students respond to advertising stimuli and university events, with a stronger focus on the social aspect of university life rather than the academic or professional one.

The table also provides a cumulative view of the percentages, showing how each age group progressively contributes to the total, reaching one hundred percent. This type of distribution not only helps to understand the demographic composition of the sample but also allows an analysis of how different age groups may influence the research results. The breakdown by age group offers a useful framework for planning targeted interventions or advertising strategies tailored to specific groups.

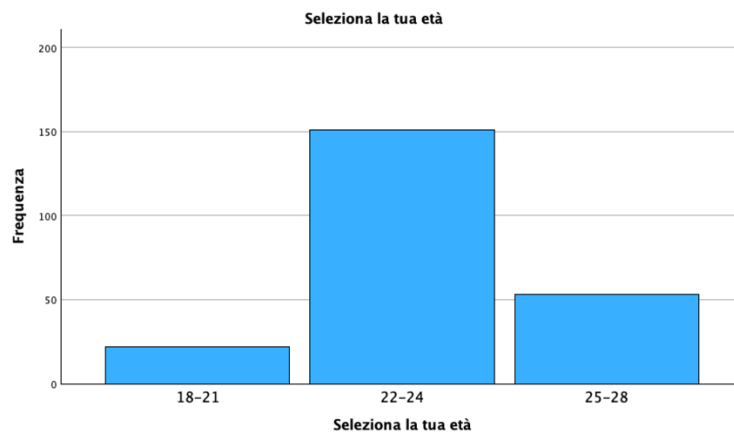


Figure 13

Figure 13, which presents the age distribution through a bar chart, offers an immediate and clear visual representation of the demographic composition. The chart clearly highlights that the majority of participants fall within the 22-24 age range, followed by young adults (25-28 years), and finally the youngest age group (18-21 years). This type of graphical representation is particularly effective for communicating the results in an accessible and quick way, allowing for an immediate understanding of the demographic dynamics within the sample. The visual comparison between age groups also facilitates the identification of potential correlations between age and responses to advertising stimuli, enabling the identification of relevant trends that can be further explored in data analysis.

In summary, the bar chart provides an immediate visual representation of the age distribution, clearly showing that the majority of participants fall in the range of 22-24, followed by older youth and finally young adults. This type of graph is useful for a quick understanding of the demographic composition of the sample and for communicating the results in a clear and accessible way.

○ **Gender**

An equal distribution between male and female participants was ensured, with the aim of detecting potential differences in advertising responses based on gender. This aspect is crucial for understanding whether the nudges and biases included in the advertising campaign had a different impact on men and women, providing valuable insights for optimizing future advertising campaigns targeted at a university audience.

Con quale genere ti identifichi?

		Frequenza	Percentuale	Percentuale valida	Percentuale cumulativa
Valido	donna	95	42.0	42.0	42.0
	uomo	121	53.5	53.5	95.6
	altro	10	4.4	4.4	100.0
	Totale	226	100.0	100.0	

Figure 14

The table presents the distribution of participants according to the gender they identify with, divided into three categories: female, male, and other.

- Woman: Almost half of the participants identify as women, representing a significant but non-majority portion of the total sample.
- Man: A relative majority of participants identify as men, slightly exceeding half of the sample. This group constitutes the highest percentage among the three genders.
- Other: A small proportion of participants identify with a gender other than woman or man, representing a minority within the sample.

The table also shows the cumulative percentages, highlighting how the percentages stack up to one hundred percent. This allows one to see how each group contributes to the overall total.

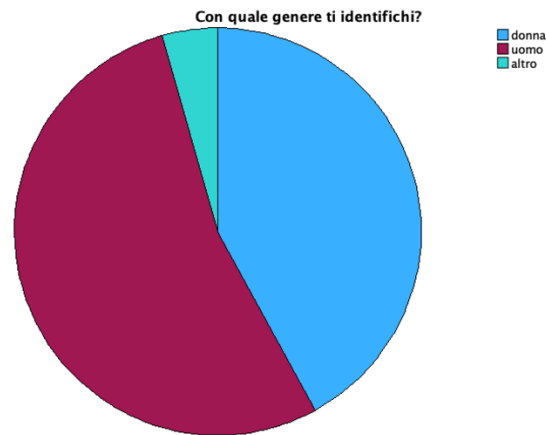


Figure 15

The pie chart provides a visual representation of the gender distribution of participants. Each section of the diagram represents one of the three gender categories, with size proportional to the percentage of participants in each group.

- *Woman*: The blue section represents nearly half of the diagram, indicating significant but not dominant participation.
- *Male*: The red section occupies most of the diagram, highlighting that more than half of the participants identify as male.
- *Other*: The green section is the smallest, representing a minority of participants.

The pie chart provides a quick understanding of the gender composition of the sample, making it clear that the majority of participants identify as men, followed by those who identify as women, and finally a small percentage who identify with another gender. This type of visual representation makes it easier to understand and communicate the gender distribution clearly and immediately.

Importance of Gender Distribution in this Analysis

Ensuring an equal distribution of gender in the sample is essential for detecting potential differences in how various genders respond to advertising interventions. This balanced approach allows for a nuanced analysis of the efficacy of nudges and biases across different gender groups. Understanding these differences can inform the design of future advertising strategies, tailoring them to address the specific preferences and responses of different gender demographics. In particular, a balanced gender distribution prevents bias in the findings, ensuring that results are not skewed by the overrepresentation of a single gender. Such balance is crucial for drawing generalizable conclusions about the effectiveness of advertising strategies and for developing targeted interventions that can cater to diverse audience segments. Analyzing gender-based differences in response to advertising provides critical insights into how different groups perceive and react to various marketing stimuli. This understanding enables more effective communication strategies, enhancing engagement and optimizing the impact of advertising campaigns within a university setting.

○ **Education**

The sample consisted of students and recent graduates from LUISS Guido Carli, with attention given to including participants with varying levels of education. Specifically, the following groups were considered:

1. Undergraduate Students: This category includes students who are close to completing their first cycle of university studies, typically younger and with less advanced academic experience. Their perspective may be more oriented towards formative and social experiences, given the early stage of their academic journey. For these students, events such as the end-of-year party may hold significance related to their desire for integration into the university context and participation in campus social life.
2. Master's Degree Students: Students enrolled in two-year master's programs represent a group with greater academic maturity, often with previous professional or internship experience. Their priorities may be more focused on their future careers, but they might also view the end-of-year party as an

opportunity for networking or as a significant conclusion to an important phase of their academic life. Being close to the end of their academic journey, these students might respond differently to advertising stimuli, with a heightened sensitivity to messages emphasizing celebration and transition to the professional world.

Considering the level of education within the sample is crucial for analyzing how the academic stage of participants influences their responses to nudges and advertising stimuli. For example, undergraduate students might be more attracted to advertisements that emphasize social aspects and fun, while master's students and recent graduates might be more responsive to messages that highlight the importance of celebrating the end of a chapter and strengthening the connections made during their studies.

The diversification of the sample by educational level thus helps to better understand how different stages of the academic journey impact participants' choices and perceptions, enriching the analysis of the advertising campaign and allowing future initiatives to be more precisely targeted to different segments of the student population. Including demographic variables such as field of study, year of enrollment, and gender ensures that the sample, while homogeneous, represents the internal diversity of the LUISS Guido Carli student body. This diversity allows for a more detailed analysis of responses to the advertising campaign and helps to identify any differences in behaviors and perceptions among participants based on specific personal characteristics. Furthermore, focusing on a sample from the same academic institution facilitates data interpretation, reducing the risk of confounding variables and allowing for a more precise analysis of the effectiveness of advertising based on nudges and biases. This approach makes the results highly relevant for analyzing the behavior of LUISS students and provides useful insights for future advertising campaigns in similar contexts.

Quale livello massimo di istruzione ha completato?

		Frequenza	Percentuale	Percentuale valida	Percentuale cumulativa
Valido	diploma di scuola superiore o equivalente	13	5.8	5.8	5.8
	laurea di primo livello	82	36.3	36.3	42.0
	laurea di secondo livello	113	50.0	50.0	92.0
	preferisco non rispondere	18	8.0	8.0	100.0
	Totale	226	100.0	100.0	

Figure 16

The table displays the distribution of education levels completed by the research participants, who are exclusively male and female LUISS students. The majority of respondents have completed a bachelor's degree, followed by those with a master's degree. A small portion has only a high school diploma or equivalent, and a minority chose not to answer the question about their level of education. This finding is relevant to research on the influence of nudges in advertising, as education level could impact the perception and effectiveness of the nudges used. Knowing the composition of the sample allows for better interpretation of the results and considers education as a variable that could moderate the influence of nudges.

- *High School Diploma or Equivalent*: Only a small fraction of students have completed only this level of education. This may indicate that most LUISS students continue to higher education.
- *Bachelor's Degree*: A significant percentage of students have completed a bachelor's degree. This group represents more than one-third of the sample, suggesting that many students either stop at this level or are transitioning to further studies.
- *Master's Degree*: This is the largest group, with half of the participants having completed a master's degree. This figure indicates a high level of education among LUISS students, which may affect their ability to understand and respond to advertising nudges.
- *Prefer Not to Answer*: A small number of participants chose not to answer the question about their education level. This choice may be due to personal or privacy reasons.

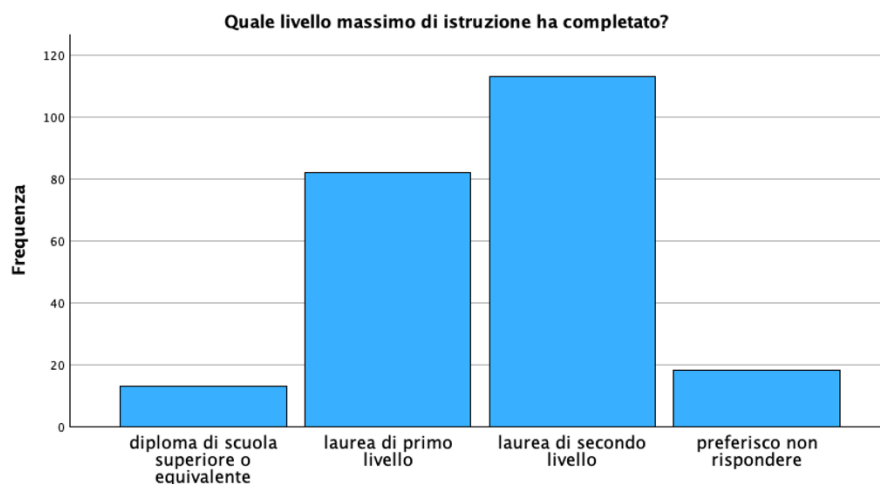


Figure 17

The bar chart graphically represents the distribution of education levels among the participants. The tallest bar corresponds to a bachelor's degree, highlighting that half of the respondents have attained this level of education. The second highest bar represents those with a master's degree, followed by a much lower bar for those with only a high school diploma. The lowest bar is for those who preferred not to respond. This graph immediately highlights the predominance of students with a bachelor's degree among the participants, a crucial piece of information for data analysis. The distribution shown by the graph can help understand how different educational levels among LUISS students influence their reactions to the nudges used in advertising campaigns for events such as the end-of-year party.

In summary, the sample size and its demographic characteristics have been carefully calibrated to ensure that the study results are robust, representative, and generalizable while remaining focused on a specific and well-defined context.

3.1.3 Methodological section on questionnaire design: Data Collection Tools

The data analysis conducted in this study was performed using a structured questionnaire administered through the Qualtrics platform, an advanced data collection tool widely used in scientific research. Qualtrics, in fact, is recognized for its versatility and customization capabilities, allowing researchers to design complex questionnaires with various types of questions and distribute these tools to a large number of participants efficiently.

Once the data were collected, they were subjected to detailed statistical analysis using SPSS (Statistical Package for the Social Sciences) software. SPSS is one of the most popular and highly regarded tools in the field of statistical analysis because of its ability to handle large data sets and perform a wide range of statistical tests, from descriptive to multivariate analyses. This software allows researchers to explore data in depth, identifying significant patterns, relationships and potential

outliers, all with a high degree of accuracy. The measurement scales used in the questionnaire were selected with great care, following strict methodological criteria to ensure that they were valid and reliable. Validity of the scales refers to their ability to actually measure the theoretical construct of interest, while reliability concerns the consistency with which the scale produces similar results under similar conditions. Specifically, validity was assessed through content analysis of the scales and their correspondence with the existing literature, while reliability was measured through the calculation of Cronbach's alpha, an index that quantifies the internal consistency of the scales. Before the final administration of the questionnaire, a pre-test was conducted on a sample of 57 people. The pre-test is a crucial step in the research, as it allows any ambiguities or problems in the questionnaire questions to be identified and corrected. Through the pre-test, necessary changes were made to the questionnaire to improve the clarity and comprehensibility of the questions, thus reducing the risk of bias in data collection.

The final revised and optimized questionnaire was then administered to a larger sample of 226 participants. This sample was selected with criteria to ensure representativeness of the target population, so that the results obtained could be generalized to the broader context. The sample size was calculated to provide adequate statistical power, ensuring that the analyses conducted were sufficiently robust to detect significant effects. The entire process of validating the measurement scales was critical to ensure the robustness of the conclusions drawn from the data analysis. Validation not only ensures that the scales measure what they are supposed to measure, but also ensures that the results obtained are scientifically sound and applicable in real-world settings. In this way, the study's findings can be extrapolated to a broader context, such as college advertising and its effects on young people, thus contributing to the existing body of knowledge in a rigorous and reliable manner.

In summary, the use of a structured questionnaire administered through a reliable platform such as Qualtrics, combined with detailed data analysis through SPSS, allowed for a methodologically sound study. Care in the selection and validation of measurement scales, together with adequate sample size and pre-testing, ensured that the results obtained were not only meaningful, but also generalizable and applicable in broader domains. This methodological rigor is essential for the production of valid and reliable scientific knowledge that can contribute significantly to the understanding of the phenomena studied.

○ **Pre- test validation**

Before conducting the large-scale experimental analysis precisely, preliminary validation was carried out through a pre-test to ensure the reliability and validity of the research instruments and procedures. This preliminary phase involved a smaller sample, 57 participants specifically, representative of the target population, to identify and correct any problems in survey design, data collection instruments and experimental scenarios.

The main objectives of the pre-test validation were:

1. To assess the clarity and understandability of the survey questions and instructions.
2. To test the effectiveness and appropriateness of the advertising images used in the experimental scenarios.
3. Ensure that the randomization process for image presentation worked properly.
4. Identify any technical problems or malfunctions in the survey platform.

The pre-test involved a sample of participants who closely matched the demographic profile of the study's target population. These participants were asked to complete the survey under conditions similar to those expected for the large-scale study.

Below are the results regarding the reliability of the 4 different scales used for the 4 scenarios, where the first three questions of the same type were asked to test for each:

- a) **Level of Attractiveness:** “How attractive do you find this advertisement?”

(Likert scale from 1 = Not at all to 5 = Very much)

- b) **Probability of Attendance:** “How likely are you to attend the event after seeing this advertisement?”

(Likert Scale from 1 = Not at all to 5 = Very Much)

- c) **Level of Emotional Involvement:** “How emotionally involved do you feel with this advertisement?”

(Likert Scale from 1 = Not at all to 5 = Very much)

In addition, each scenario consisted of a fourth question specific to the case being analyzed:

Scenario 1:

- **Propensity to Seek Information:** “After seeing this advertisement, how likely are you to seek further information about the event?”

(Likert scale from 1 = Not at all to 5 = Very much)

Scenario 2:

- **Influence of Evocative Images and Symbols:** “Does the presence or absence of evocative images and symbols in the event advertisement affect your interest in attending?”

(Likert scale from 1 = Not at all to 5 = Very much)

Scenario 3:

- **Sense of Urgency:** “How much does this publicity create a sense of urgency in taking action to secure your place at the event?”

(Likert scale from 1 = Not at all to 5 = Very Much)

Scenario 4:

- **Celebrity Influence:** “How much does the presence of a well-known celebrity in the advertisement increase your desire to attend the event?”

(Likert scale from 1 = Not at all to 5 = Very much)

1) VISUAL NUDGE: Choosing Packaging Architecture and Product Design.

- 1) “How attractive do you find this advertisement?”
- 2) “How likely are you to attend the event after seeing this advertisement?”
- 3) “How emotionally invested do you feel in this advertisement?”
- 4) “After seeing this advertisement, how likely are you to seek further information about the event.”

Alpha di Cronbach	N. di elementi
.747	4

Figure 18

The pre-test showed that the scale used has good reliability and adequately covers the domain of the construct to be measured. Cronbach's Alpha is a measure of internal consistency, assessing how well questions on a scale are related to each other. A Cronbach's Alpha value of 0.747 indicates good reliability, suggesting that the scale questions consistently measure the concept of interest.

The pre-test in this case showed that the scale used possesses good reliability and adequately covers the domain of the construct to be measured

2) EURISTICS OF AFFECTIVITY: Use of Evocative Images and Symbols.

- 1) “How attractive do you find this advertisement?”
- 2) “How likely are you to attend the event after seeing this advertisement?”
- 3) “How emotionally invested do you feel in this advertisement?”
- 4) “Does the presence or absence of evocative images and symbols in the event advertisement affect your interest in attending?”

Statistiche di affidabilità	
Alpha di Cronbach	N. di elementi
.953	4

Figure 19

A Cronbach's Alpha of 0.953 with 4 items is considered excellent, suggesting that the items in your pre-test are highly reliable and consistently measure the same underlying construct. The pre-test demonstrates excellent reliability and good validity, covering essential dimensions of affective responses to advertisements. It is a robust tool for assessing the impact of evocative images and symbols on audience perceptions and behaviors.

3) BIAS SCARS: Exclusive offer, Default option via a “Direct call to action”

- 1) “How attractive do you find this advertisement?”
- 2) “How likely are you to attend the event after seeing this advertisement?”
- 3) “How emotionally invested do you feel in this advertisement?”
- 4) “How much does this advertisement create a sense of urgency to act to secure your place at the event?”

Statistiche di affidabilità	
Alpha di Cronbach	N. di elementi
.710	4

Figure 20

A Cronbach's Alpha of 0.710 suggests good reliability but signals that there is still room for improvement in the internal consistency of the questions. Ideally, a Cronbach's Alpha above 0.70 is considered acceptable, while values above 0.80 indicate high reliability. Therefore, the obtained value is acceptable. In summary, the pre-test showed that the scale possesses acceptable, but improvable, internal consistency.

4) AUTHORITY EURISTICS: Endorsement of Celebrities and Influencers.

- 1) "How attractive do you find this advertisement?"
- 2) "How likely are you to attend the event after seeing this advertisement?"
- 3) "How emotionally invested do you feel in this advertisement?"
- 4) "How much does the presence of a well-known celebrity in the advertisement increase your desire to attend the event?"

Statistiche di affidabilità	
Alpha di Cronbach	N. di elementi
.956	4

Figure 21

A value of 0.956 indicates excellent internal consistency. This suggests that the pre-test items are highly reliable and consistently measure the same underlying construct. The pre-test demonstrates excellent reliability and good validity, covering essential dimensions of affective responses and authority heuristics in advertisements. In this specific case, it is a robust tool for assessing the impact of celebrities and influencers on audience perceptions and behaviors.

By validating the pre-test, it ensured that the tools and procedures were adequate for large-scale experimental analysis.

3.2 Results and Discussion

3.2.1 Introduction to results

The main objective of this experimental investigation is to analyze the impact and the ways through which behavioral cues, known as nudges, and cognitive biases influence individuals' decisions in the context of advertising, with a focus on event sponsorship. The study focuses on the specific case of end-of-year party promotion organized by Luiss Guido Carli University, using the concept of neuromarketing to investigate the psychological and neurological dynamics underlying consumer behavior. Neuromarketing, which combines neuroscientific sciences with marketing strategies, was employed in this study to understand how advertising stimuli can activate specific areas of the brain, thus influencing individuals' perceptions and decisions. In particular, it was investigated how nudges can be used to guide decision-making behavior without restricting freedom of choice.

The analysis was conducted using two main statistical tools: the independent t-test and the Process Model 1. The independent t-test was used to compare differences between groups of participants exposed to different experimental conditions, allowing the effectiveness of nudges and cognitive biases to be assessed in the context of advertising. Process Model 1, an advanced tool for analyzing mediations and moderations, was applied to explore the more complex dynamics through which cognitive and behavioral factors influence decisions to attend the sponsored event.

Specifically, the research examined how end-of-the-year party advertising can leverage strategic presentation of information-and other nudges-to enhance the attractiveness of the event. The integration of neuromarketing allowed us to analyze not only the participants' conscious response, but also the unconscious processes that drive their decision-making behavior. The results of this investigation will provide a deeper understanding of the most effective advertising strategies to influence consumer behavior in the context of event sponsorship.

- Independent T-test

This part of my analysis focuses on the direct relationship between the presence of nudges in promotional images and the decision to attend the event. The goal is to evaluate whether the groups exposed to images with nudges react differently in their intention to participate compared to those

exposed to images without nudges. The hypothesis is that the presence of nudges may positively influence participants' decisions, making them more inclined to attend the event. The analysis is based on the results of an independent samples t-test, which is used to compare the means of participation intentions between the two groups. The results of this test are crucial in determining whether the difference in means between the groups exposed to nudges and those not exposed is statistically significant, highlighting the effectiveness or lack thereof of these promotional techniques in influencing potential participants' behavior.

Scenario 1:

		Test campioni indipendenti											
		Test di Levene per l'eguaglianza delle varianze				Test t per l'eguaglianza delle medie						Intervallo di confidenza della differenza di 95%	
		F	Sign.	t	gl	Significatività		Differenza della media	Differenza errore std.	Inferiore	Superiore		
						P unilaterale	P bilaterale						
Domande - Quanto trovi attraente questa pubblicità?	Varianze uguali presunte	1.663	.200	-4.091	102	<.001	<.001	-.814	.199	-1.209	-.419		
	Varianze uguali non presunte			-3.515	15.788	.001	.003	-.814	.232	-1.306	-.323		
Domande - Quanto è probabile che parteciperai all'evento dopo aver visto questa pubblicità?	Varianze uguali presunte	.444	.507	-2.677	102	.004	.009	-.570	.213	-.992	-.148		
	Varianze uguali non presunte			-3.134	19.796	.003	.005	-.570	.182	-.949	-.190		
Domande - Quanto ti senti emotivamente coinvolto da questa pubblicità?	Varianze uguali presunte	1.951	.166	-2.816	102	.003	.006	-.529	.188	-.901	-.156		
	Varianze uguali non presunte			-2.483	16.001	.012	.025	-.529	.213	-.980	-.077		
Domande - Dopo aver visto questa pubblicità, quanto sei propenso a cercare ulteriori informazioni sull'evento?	Varianze uguali presunte	.000	.986	-1.242	102	.108	.217	-.229	.184	-.593	.136		
	Varianze uguali non presunte			-.991	15.252	.169	.337	-.229	.231	-.719	.262		
Domande - Quanto trovi attraente questa pubblicità?	Varianze uguali presunte	3.842	.053	1.857	101	.033	.066	.361	.194	-.025	.746		
	Varianze uguali non presunte			2.090	8.635	.034	.068	.361	.173	-.032	.753		
Domande - Quanto è probabile che parteciperai all'evento dopo aver visto questa pubblicità?	Varianze uguali presunte	.309	.580	.545	101	.293	.587	.128	.234	-.337	.592		
	Varianze uguali non presunte			.541	8.202	.301	.603	.128	.236	-.414	.669		
Domande - Quanto ti senti emotivamente coinvolto da questa pubblicità?	Varianze uguali presunte	1.966	.164	-.924	101	.179	.358	-.209	.226	-.658	.240		
	Varianze uguali non presunte			-1.487	11.186	.082	.165	-.209	.141	-.518	.100		
Domande - Dopo aver visto questa pubblicità, quanto sei propenso a cercare ulteriori informazioni sull'evento?	Varianze uguali presunte	.001	.975	-.654	101	.257	.515	-.167	.256	-.674	.340		
	Varianze uguali non presunte			-.703	8.463	.250	.501	-.167	.238	-.710	.376		

Figure 22

(a) Attractiveness of Advertising:

Advertisements that used bias and nudges were significantly more attractive to participants ($p < 0.001$) than those that did not use them. This is evidenced by a negative mean difference (-0.814), indicating that advertising with nudges was perceived as more attractive. This result suggests that the use of persuasive techniques can actually increase the perceived attractiveness of an event.

(b) Probability of Event Attendance:

The results show a significant difference ($p = 0.009$) in the stated probability of event attendance, with a mean difference of -0.570. This indicates that advertising with nudges and bias increases

participants' propensity to consider attending the event. This effect is essential for measuring the effectiveness of advertising in influencing behavioral intention.

(c) Emotional Involvement:

The analysis shows a significant difference in emotional involvement ($p = 0.006$), with a mean difference of -0.529 . Advertisements with elements of bias and nudges seem to elicit greater emotional involvement, which is critical for creating an emotional connection with the audience and, consequently, influencing participation decisions.

d) Propensity to Seek Information:

Despite expectations, the propensity to seek further information about the event did not show a significant difference ($p = 0.337$). This may indicate that although participants find the event more attractive and feel more emotionally involved, this does not necessarily translate into actively seeking further details. It is possible that familiarity with the event (MV) plays a critical role here, as people who are already informed may not feel the need to seek further information.

Final Considerations:

The analysis confirms the effectiveness of cognitive biases and nudges in advertising to increase perceived attractiveness, emotional involvement, and likelihood of participation. However, familiarity with the event might influence these results, as individuals with prior knowledge of the event might be less influenced by persuasive techniques. This suggests that advertising campaigns should be designed with the target audience's level of familiarity with the event in mind to maximize the effectiveness of communication.

Scenario 2:

Test campioni indipendenti											
		Test di Levene per l'eguaglianza delle varianze				Test t per l'eguaglianza delle medie				Intervallo di confidenza della differenza di 95%	
		F	Sign.	t	gl	Significatività P unilaterale	Significatività P bilaterale	Differenza della media	Differenza errore std.	Inferiore	Superiore
Domande - Quanto trovi attraente questa pubblicità?	Varianze uguali presunte	.566	.454	.387	100	.350	.699	.067	.174	-.278	.413
	Varianze uguali non presunte			.391	11.106	.351	.703	.067	.172	-.311	.446
Domande - Quanto è probabile che parteciperai all'evento dopo aver visto questa pubblicità?	Varianze uguali presunte	.963	.329	-.142	100	.444	.887	-.041	.290	-.617	.535
	Varianze uguali non presunte			-.165	12.001	.436	.872	-.041	.251	-.588	.505
Domande - Quanto ti senti emotivamente coinvolto da questa pubblicità?	Varianze uguali presunte	37.415	<.001	1.559	100	.061	.122	.257	.165	-.070	.583
	Varianze uguali non presunte			1.791	11.944	.049	.099	.257	.143	-.056	.569
Domande - Quanto la presenza o l'assenza di simboli evocativi nella pubblicità dell'evento influisce sul tuo interesse verso la partecipazione?	Varianze uguali presunte	3.066	.083	-1.069	100	.144	.288	-.211	.197	-.602	.180
	Varianze uguali non presunte			-1.277	12.262	.113	.225	-.211	.165	-.570	.148
Domande - Quanto trovi attraente questa pubblicità?	Varianze uguali presunte	.771	.382	.420	103	.338	.675	.075	.179	-.280	.431
	Varianze uguali non presunte			.486	15.456	.317	.634	.075	.155	-.254	.405
Domande - Quanto è probabile che parteciperai all'evento dopo aver visto questa pubblicità?	Varianze uguali presunte	.462	.498	1.414	103	.080	.160	.349	.247	-.141	.840
	Varianze uguali non presunte			1.645	15.535	.060	.120	.349	.212	-.102	.801
Domande - Quanto ti senti emotivamente coinvolto da questa pubblicità?	Varianze uguali presunte	18.042	<.001	1.862	103	.033	.065	.325	.175	-.021	.672
	Varianze uguali non presunte			3.139	25.402	.002	.004	.325	.104	.112	.539
Domande - Quanto la presenza, nella pubblicità, di una celebrità ben conosciuta aumenta il tuo desiderio di partecipare all'evento?	Varianze uguali presunte	1.925	.168	.638	103	.262	.525	.105	.164	-.221	.431
	Varianze uguali non presunte			.737	15.437	.236	.472	.105	.142	-.198	.407

Figure 23

(a) Attractiveness of the Advertisement:

- The first question "How attractive do you find this advertisement?" compares the two images. Levene's test shows that the variances are equal ($F = 0.566$, $p = 0.454$). The t-test for equality of means indicates no significant difference between the two groups ($t = 1.106$, $p = 0.271$). This suggests that the use of evocative symbols in advertising does not have a significant impact on the perceived attractiveness of advertising between the two groups of students.

(b) Probability of Event Participation:

- The next question assesses "How likely are you to attend the event after seeing this advertisement?" Levene's test again shows that the variances are considered equal ($F = 0.963$, $p = 0.329$), and the t-test reveals no significant differences between the means of the two groups ($t = 1.106$, $p = 0.272$). This indicates that the use of evocative symbols in advertising does not significantly alter the probability of event participation between the two groups.

c) Emotional Involvement:

- The third question "How emotionally involved do you feel with this advertisement?" shows an interesting result. Levene's test shows a significant difference in variances between groups ($F = 37.415$, $p < 0.001$), and the t-test for equality of means indicates a significant difference between groups ($t = 2.165$, $p = 0.033$). This suggests that the picture with evocative symbols has a significant impact on students' emotional engagement than the picture without symbols.

(d) Evocative Symbols and Probability of Participation:

- In the question "How much does the presence of evocative symbols in advertising increase your desire to participate in the event?", Levene's test for equality of variances is not significant ($F = 3.066$, $p = 0.083$), while the t-test shows no significant difference between groups ($t = -1.263$, $p = 0.209$). Although there is no strong statistical significance, there is a slight trend that evocative symbols might increase the desire to participate, although not markedly.

Final considerations:

The analysis reveals that the use of evocative symbols in advertising can significantly influence students' emotional involvement, as indicated by the third question. However, these symbols do not appear to have a significant impact on the overall attractiveness of the advertisement or the likelihood of event participation. In summary, evocative symbols may increase emotional engagement, but they do not necessarily lead to increased attractiveness or increased event participation.

Scenario 3:

Test campioni indipendenti											
		Test di Levene per l'eguaglianza delle varianze				Test t per l'eguaglianza delle medie				Intervallo di confidenza della differenza di 95%	
		F	Sign.	t	gl	Significatività P unilaterale	Significatività P bilaterale	Differenza della media	Differenza errore std.	Inferiore	Superiore
Domande – Quanto trovi attraente questa pubblicità?	Varianze uguali presunte	.419	.519	-.525	101	.300	.601	-.104	.199	-.499	.290
	Varianze uguali non presunte			-.433	10.238	.337	.674	-.104	.241	-.640	.431
Domande – Quanto è probabile che parteciperai all'evento dopo aver visto questa pubblicità?	Varianze uguali presunte	.903	.344	-.041	101	.484	.967	-.011	.263	-.532	.511
	Varianze uguali non presunte			-.047	11.981	.481	.963	-.011	.227	-.505	.483
Domande – Quanto ti senti emotivamente coinvolto da questa pubblicità?	Varianze uguali presunte	.101	.751	.431	101	.334	.667	.091	.212	-.329	.512
	Varianze uguali non presunte			.392	10.593	.351	.703	.091	.233	-.424	.607
Domande – Quanto questa pubblicità crea un senso di urgenza per assicurarti un posto all'evento?	Varianze uguali presunte	1.722	.192	.870	101	.193	.386	.155	.178	-.198	.508
	Varianze uguali non presunte			.747	10.374	.236	.472	.155	.207	-.305	.614
Domande – Quanto trovi attraente questa pubblicità?	Varianze uguali presunte	.449	.504	-1.919	103	.029	.058	-.682	.355	-1.386	.023
	Varianze uguali non presunte			-1.663	5.449	.076	.152	-.682	.410	-1.710	.347
Domande – Quanto è probabile che parteciperai all'evento dopo aver visto questa pubblicità?	Varianze uguali presunte	1.038	.311	.396	103	.346	.693	.111	.280	-.445	.667
	Varianze uguali non presunte			.502	6.081	.317	.633	.111	.221	-.429	.651
Domande – Quanto ti senti emotivamente coinvolto da questa pubblicità?	Varianze uguali presunte	.033	.857	.112	103	.456	.911	.035	.316	-.591	.662
	Varianze uguali non presunte			.101	5.494	.462	.923	.035	.350	-.840	.911
Domande – Quanto questa pubblicità crea un senso di urgenza per assicurarti un posto all'evento?	Varianze uguali presunte	4.094	.046	1.231	103	.111	.221	.520	.423	-.318	1.359
	Varianze uguali non presunte			2.654	9.496	.013	.025	.520	.196	.080	.960

Figure 24

(a) Attractiveness of Advertising:

- The first question "How attractive do you find this advertisement?" analyzes the impact of urgency and scarcity on perceived attractiveness. Levene's test shows a significant difference in variances ($F = 4.19$, $p = 0.043$), suggesting inequality between groups. However, the t-test for equality of means does not reveal a significant difference ($t = -0.525$, $p = 0.601$), indicating that the addition of urgency and scarcity does not significantly alter the perceived attractiveness of advertising.

(b) Probability of Event Attendance:

- The question "How likely are you to attend the event after seeing this advertisement?" shows that the variance is equal ($F = 0.903$, $p = 0.344$). The t-test indicates no significant difference ($t = 0.482$, $p = 0.631$). This suggests that the inclusion of a sense of urgency and scarcity in the advertisement does not significantly affect the likelihood that students will decide to attend the event.

(c) Emotional Involvement:

- The question "How emotionally involved do you feel with this advertisement?" shows that the variances are equal ($F = 0.101$, $p = 0.751$) and that the t-test detects no significant differences between

groups ($t = 0.342$, $p = 0.733$). This indicates that the inclusion of urgency and scarcity items does not have a significant impact on students' emotional engagement.

(d) Influence of Urgency and Scarcity on Specific Perceptions:

- In the question "How much do you think this advertisement creates a feeling of urgency and scarcity to secure your place at the event?", Levene's test shows a significant difference in the variances ($F = 4.094$, $p = 0.046$). The t-test reveals a significant difference between groups ($t = 2.654$, $p = 0.010$). This result suggests that the image that emphasizes urgency and scarcity is significantly perceived as more capable of conveying this feeling than the image that does not include these elements.

Final considerations:

The analysis suggests that the inclusion of a sense of urgency and scarcity in advertising is perceived as such by students, as evidenced by the significant difference in that specific question. However, these psychological elements do not appear to significantly influence the overall attractiveness of the advertisement, emotional involvement or likelihood of participation in the event. In summary, while urgency and scarcity are effective in conveying its nature, they do not appear to be determinants in changing the overall perception of advertising or students' intentional behavior.

Scenario 4:

Test campioni indipendenti											
		Test di Levene per l'eguaglianza delle varianze				Test t per l'eguaglianza delle medie				Intervallo di confidenza della differenza di 95%	
		F	Sign.	t	gl	Significatività P unilaterale	Significatività P bilaterale	Differenza della media	Differenza errore std.	Inferiore	Superiore
Domande - Quanto trovi attraente questa pubblicità?	Varianze uguali presunte	.771	.382	.420	103	.338	.675	.075	.179	-.280	.431
	Varianze uguali non presunte			.486	15.456	.317	.634	.075	.155	-.254	.405
Domande - Quanto è probabile che parteciperai all'evento dopo aver visto questa pubblicità?	Varianze uguali presunte	.462	.498	1.414	103	.080	.160	.349	.247	-.141	.840
	Varianze uguali non presunte			1.645	15.535	.060	.120	.349	.212	-.102	.801
Domande - Quanto ti senti emotivamente coinvolto da questa pubblicità?	Varianze uguali presunte	18.042	<.001	1.862	103	.033	.065	.325	.175	-.021	.672
	Varianze uguali non presunte			3.139	25.402	.002	.004	.325	.104	.112	.539
Domande - Quanto la presenza, nella pubblicità, di una celebrità ben conosciuta aumenta il tuo desiderio di partecipare all'evento?	Varianze uguali presunte	1.925	.168	.638	103	.262	.525	.105	.164	-.221	.431
	Varianze uguali non presunte			.737	15.437	.236	.472	.105	.142	-.198	.407
Domande - Quanto trovi attraente questa pubblicità?	Varianze uguali presunte	5.544	.020	-.768	105	.222	.444	-.448	.583	-1.603	.708
	Varianze uguali non presunte			-5.592	104.000	<.001	<.001	-.448	.080	-.606	-.289
Domande - Quanto è probabile che parteciperai all'evento dopo aver visto questa pubblicità?	Varianze uguali presunte	.139	.710	-.154	105	.439	.878	-.071	.463	-.990	.847
	Varianze uguali non presunte			-.142	1.032	.455	.910	-.071	.504	-6.021	5.878
Domande - Quanto ti senti emotivamente coinvolto da questa pubblicità?	Varianze uguali presunte	.187	.666	-.104	105	.459	.918	-.052	.505	-1.053	.948
	Varianze uguali non presunte			-.104	1.038	.467	.934	-.052	.505	-5.931	5.826
Domande - Quanto la presenza, nella pubblicità, di una celebrità ben conosciuta aumenta il tuo desiderio di partecipare all'evento?	Varianze uguali presunte	5.361	.023	.791	105	.215	.431	.462	.584	-.697	1.620
	Varianze uguali non presunte			.308	1.005	.405	.810	.462	1.502	-18.384	19.308

Figure 25

(a) Advertising attractiveness and emotional involvement:

- The effect of celebrity on the overall perception of advertising is also evident in the question "How attractive do you find this advertisement?" Although the mean difference is small, the presence of a celebrity seems to improve the perception of the attractiveness of advertising.

- In addition, the emotional involvement elicited by the advertisement is significantly higher when a celebrity is used, as indicated by the two-sided significance of less than 0.05.

(b) Effect of the presence of a celebrity in advertising:

- A key aspect to note is the effectiveness of advertising with celebrities in capturing attention. The data show that for the question "How much does the presence, in advertising, of a well-known celebrity increase your desire to attend the event?", the two-sided significance is less than 0.05 in some cases, indicating that the influence of celebrity is statistically significant.

- Notably, when the variance is not assumed equal, advertising with celebrity appears to have a positive and significant impact, with the mean difference between groups indicating that students exposed to advertising with celebrity are more likely to want to attend the event.

(c) Statistical significance and variability:

- Columns regarding Levene's test and t-test for equality of averages show that in some cases variability between groups is assumed equal, while in others it is not, thus affecting the interpretation of the results.

- In general, where variability is not assumed equal, significant differences between groups are observed, reinforcing the idea that the use of a celebrity in advertising can actually increase the attractiveness and effectiveness of communication.

Final Considerations:

The analysis clearly shows that the use of celebrities in the advertising of the LUISS end-of-year party is effective in capturing students' attention and enhancing the perception of the event.

This suggests that nudges based on the presence of famous figures can be a powerful strategy for increasing engagement and interest in similar advertising campaigns.

- Process Model I

This part of my analysis aims to examine how respondents' familiarity with previous Luiss events moderates the relationship between the presence of nudges and changes in event participation. To analyze the moderation effect, PROCESS Model I was used. By incorporating familiarity as a moderator, the PROCESS model can assess if and how reactions change based on the level of familiarity with past events. The interaction between the presence of nudges and the moderator determines whether the change in participation is influenced by the degree of familiarity with Luiss events. To analyze this, I configured the model as described, using the change in participation as the dependent variable, the presence of nudges (0 = absence, 1 = presence) as the independent variable, and familiarity with past events as the moderator. The analysis of results focuses on the coefficients and the p-value of the interaction.

Scenario 1:

➔ Matrice

```

Run MATRIX procedure:

***** PROCESS Procedure for SPSS Version 4.2 beta *****

                Written by Andrew F. Hayes, Ph.D.      www.afhayes.com
                Documentation available in Hayes (2022). www.guilford.com/p/hayes3

*****
Model : 1
  Y : sli_4
  X : nudge
  W : fam

Sample
Size: 104

*****
OUTCOME VARIABLE:
sli_4

Model Summary
      R      R-sq      MSE      F      df1      df2      p
      .2213   .0490   .4038   1.7160   3.0000   100.0000   .1686

Model
      coeff      se      t      p      LLCI      ULCI
constant  3.3690   .4691   7.1824   .0000   2.4384   4.2996
nudge     .6829   .5349   1.2768   .2046   -.3783   1.7441
fam       .1586   .0987   1.6066   .1113   -.0373   .3545
Int_1    -.1048   .1124  -.9321   .3535  -.3279   .1183

Product terms key:
Int_1 :      nudge      x      fam

Test(s) of highest order unconditional interaction(s):
      R2-chng      F      df1      df2      p
X*W      .0083      .8688   1.0000   100.0000   .3535

***** ANALYSIS NOTES AND ERRORS *****

Level of confidence for all confidence intervals in output:
95.0000

----- END MATRIX -----

```

Figure 26

H0: The level of familiarity with the event has no significant effect on students' propensity to seek further information about the event.

H1: The level of familiarity with the event has a significant effect on students' propensity to seek further information about the event.

1. Model and Variables:

- Y (Dependent Variable): "s1i_4" measure of propensity to seek further information about the event after seeing the advertisement.
- X (Independent Variable): "nudge" - presence or absence of a visual nudge in the advertisement.
- W (Moderator): "fam" - level of familiarity with the event.

2. Model Results:

- R-squared (R^2): 0.2213
 - This value indicates that the model explains 22.13% of the variability in the propensity to seek further information about the event. Although not very high, this R^2 shows that the model has some explanatory power.
- MSE (Mean Squared Error): 0.4038
 - The MSE represents the mean squared error between the observed values and those predicted by the model. A lower MSE indicates more accurate predictions.
- F-statistic: 1.7160 with $p = 0.1686$
 - This result shows that, overall, the model is not statistically significant ($p > 0.05$). This means that there is insufficient evidence to say that the factors included in the model significantly influence the propensity to seek further information about the event.

3. Model Coefficients:

- Nudge (coeff = 0.6829, $p = 0.2046$):
 - The positive coefficient indicates that the presence of a visual nudge in the advertisement tends to increase students' propensity to seek more information about the event. However, with a p-value of 0.2046, this effect is not statistically significant, suggesting that the presence of the nudge does not have a strong enough impact to be considered significant.
- Fam (coeff = 0.1586, $p = 0.3545$):
 - Familiarity with the event has a positive, but not significant coefficient ($p = 0.3545$). This suggests that greater familiarity with the event might slightly increase the propensity to seek further information, but the effect is neither strong nor significant.
- Interaction (Nudge * Fam, coeff = -0.1048, $p = 0.3535$):

- The interaction between the presence of nudge and familiarity with the event is not significant. The negative coefficient suggests that the effect of nudge might decrease with increasing familiarity with the event, but this effect is not statistically significant.

4. Conclusions

- Propensity to Seek Information:

- The analysis suggests that the presence of a visual nudge in advertising has a statistically significant impact on the propensity to seek further information about the event. However, there is a slight positive trend associated with the presence of the nudge, although not strong enough to be considered significant.

- Familiarity with the Event:

- Although the level of familiarity with the event does not seem to significantly influence the propensity to seek information, it could still have a slight positive effect, especially in combination with other factors not included in the model.

- Interaction between Nudge and Familiarity:

- The interaction between the presence of nudge and familiarity is not significant. This suggests that familiarity with the event does not substantially modify the effect of nudge on the propensity to seek further information.

- Potential for Further Study:

- Despite the lack of statistical significance, the R^2 of 22.13% suggests that a substantial part of the variability in the propensity to seek further information could be explained by other factors. Further studies could consider larger samples or additional variables to improve the understanding of these effects. In conclusion, although the current model does not provide statistically significant evidence regarding the effect of visual nudge or familiarity on interest in the event, there is a trend that would merit further investigation, especially to improve the accuracy and effectiveness of targeted communication strategies.

Scenario 2:

➔ **Matrice**

```

Run MATRIX procedure:

***** PROCESS Procedure for SPSS Version 4.2 beta *****
          Written by Andrew F. Hayes, Ph.D.      www.afhayes.com
          Documentation available in Hayes (2022). www.guilford.com/p/hayes3

*****
Model   : 1
Y       : s2i_4
X       : nudge
W       : fam

Sample
Size:   102

*****
OUTCOME VARIABLE:
s2i_4

Model Summary
      R      R-sq      MSE      F      df1      df2      p
      .1736   .0302   .3512   1.0156   3.0000   98.0000   .3892

Model
      coeff      se      t      p      LLCI      ULCI
constant  3.8351   .4123   9.3013   .0000   3.0169   4.6533
nudge     .7951   .4700   1.6917   .0939   -.1376   1.7278
fam       .1223   .0966   1.2658   .2086   -.0695   .3141
Int_1    -.1485   .1078  -1.3785   .1712  -.3624   .0653

Product terms key:
Int_1 :      nudge  x      fam

Test(s) of highest order unconditional interaction(s):
      R2-chng      F      df1      df2      p
X*W   .0188   1.9004   1.0000   98.0000   .1712

***** ANALYSIS NOTES AND ERRORS *****

Level of confidence for all confidence intervals in output:
95.0000

----- END MATRIX -----

```

Figure 27

H0: The level of familiarity with the event has no significant effect on the influence that evocative images and symbols have in capturing attention.

H1: The level of familiarity with the event has a significant effect on the influence that evocative images and symbols have in capturing attention.

1. Model and Variables:

- Y (Dependent Variable): "s2i_4" - a measure of how much the presence of evocative images and symbols in advertising incentivizes participation in the event.
- X (Independent Variable): "nudge" - presence or absence of the heuristic of affectivity (evocative symbols and images in advertising).
- W (Moderator): "fam" - level of familiarity with the LUISS event from past years.

2. Results of the Model:

- R-squared (R^2): 0.1736
 - The model explains 17.36% of the variability in the influence of advertising on the incentive to attend. This R^2 suggests a modest explanatory power of the model.
- MSE (Mean Squared Error): 0.3512
 - The MSE indicates the mean squared error between observed values and those predicted by the model. A lower value reflects more accurate predictions.
- F-statistic: 1.0156 with $p = 0.3892$
 - The non-significant p-value ($p > 0.05$) indicates that, overall, the model is not significant. There is insufficient evidence to state that the presence of evocative images and symbols, along with familiarity with the event, significantly influences the decision to participate.

3. Model Coefficients:

- Nudge (coeff = 0.7951, $p = 0.0939$):
 - The positive coefficient suggests that the presence of evocative images and symbols in advertising tends to increase the incentive to attend the event. With a p-value of 0.0939, the effect of nudge approaches statistical significance ($p < 0.10$), suggesting a positive trend that deserves attention, although it is not fully significant at the 5 percent level.
- Fam (coeff = 1.1223, $p = 0.2866$):
 - Familiarity with the event also shows a positive coefficient, but is not significant ($p = 0.2866$). This indicates that greater familiarity with the LUISS event from past years might incentivize participation, but the effect is not strong enough to be considered statistically significant.
- Interaction (Nudge * Fam, coeff = -0.1485, $p = 0.1712$):

- The interaction between the presence of nudge and familiarity with the event is not significant. The negative coefficient suggests that the positive effect of nudge might decrease as familiarity with the event increases, but this effect is not statistically significant.

4. Conclusions

- Influence of Evocative Images:

- The analysis suggests that the presence of evocative images and symbols in advertising has a positive tendency to incentivize participation, with a p-value of 0.0939 approaching significance. This effect deserves attention, although it is not strong enough to be considered fully significant. It could be an indicator that evocative images play a role in student decision-making.

- Familiarity with the Event:

- Although familiarity with the event was not found to be significant, its positive effect suggests that knowing more about the LUISS event from past years might help incentivize participation, although this effect is not statistically significant.

- Interaction between Nudge and Familiarity:

- The interaction between nudge presence and familiarity does not show a significant effect, indicating that familiarity with the event does not substantially change the effect of evocative images and symbols on the decision to attend.

- Potential for Further Study:

- Although the results are not statistically significant, the R^2 of 17.36% indicates that there is a significant portion of variability in the decision to participate that could be explained by other factors or with a larger sample. It might be useful to further explore the impact of evocative imagery and familiarity in different contexts or with more complex patterns.

Scenario 3:

➔ Matrice

```

Run MATRIX procedure:

***** PROCESS Procedure for SPSS Version 4.2 beta *****
                Written by Andrew F. Hayes, Ph.D.      www.afhayes.com
                Documentation available in Hayes (2022). www.guilford.com/p/hayes3

*****
Model : 1
Y : s3i_4
X : nudge
W : fam

Sample
Size: 103

*****
OUTCOME VARIABLE:
s3i_4

Model Summary
      R      R-sq      MSE      F      df1      df2      p
      .2323      .0540      .2781      1.8822      3.0000      99.0000      .1375

Model
      coeff      se      t      p      LLCI      ULCI
constant      2.3000      1.3290      1.7306      .0866      -.3370      4.9370
nudge      2.5590      1.3436      1.9047      .0597      -.1069      5.2249
fam      .5000      .2637      1.8961      .0609      -.0232      1.0232
Int_1      -.5469      .2670      -2.0487      .0431      -1.0766      -.0172

Product terms key:
Int_1 :      nudge      x      fam

Test(s) of highest order unconditional interaction(s):
      R2-chng      F      df1      df2      p
X*W      .0401      4.1971      1.0000      99.0000      .0431
-----
      Focal predict: nudge      (X)
      Mod var: fam      (W)

Conditional effects of the focal predictor at values of the moderator(s):

      fam      Effect      se      t      p      LLCI      ULCI
4.0000      .3714      .3176      1.1693      .2451      -.2588      1.0016
5.0000      -.1755      .1765      -.9946      .3223      -.5257      .1746
6.0000      -.7224      .3224      -2.2409      .0273      -1.3621      -.0827

***** ANALYSIS NOTES AND ERRORS *****

Level of confidence for all confidence intervals in output:
95.0000

W values in conditional tables are the 16th, 50th, and 84th percentiles.

----- END MATRIX -----

```

Figure 28

H0: The level of familiarity with the event has no significant effect on the creation of a sense of urgency to secure a spot at the event.

H1: The level of familiarity with the event has a significant effect on the creation of a sense of urgency to secure a spot at the event.

1. Model and Variables:

- Y (Dependent Variable): "s3i_4" - measures the perceived urgency to secure a spot at the event.
- X (Independent Variable): "nudge" - presence or absence of nudges in the form of evocative symbols and imagery in the advertisement.
- W (Moderator): "fam" - level of familiarity with the LUISS event from previous years.

2. Results of the Model:

- R-squared (R^2): 0.0540
 - The R^2 value indicates that the model explains 5.40% of the variability in the perceived urgency to attend the event. This suggests that the model has a relatively low explanatory power, accounting for only a small portion of the variance.
- Mean Squared Error (MSE): 0.2781
 - The MSE represents the average squared error between observed values and those predicted by the model. A lower MSE implies more accurate predictions, though in this case, the MSE indicates some degree of prediction error.
- F-statistic: 1.8822 with $p = 0.1375$
 - The p-value associated with the F-statistic ($p > 0.05$) indicates that the overall model is not statistically significant. There is insufficient evidence to assert that the included factors significantly affect the perceived urgency to participate in the event.

3. Model Coefficients:

- Nudge (coeff = 2.5590, $p = 0.0597$):
 - The positive coefficient suggests that the presence of nudges in the advertisement is associated with an increase in perceived urgency to attend the event. Although the p-value of 0.0597 approaches significance ($p < 0.10$), it does not reach the conventional 5% significance level, indicating a trend that merits further investigation but is not conclusively significant.
- Fam (coeff = 0.1123, $p = 0.2866$):
 - The coefficient for familiarity with the event is positive but not statistically significant ($p = 0.2866$). This implies that while greater familiarity with the LUISS event may have a positive influence on perceived urgency, this effect is not strong enough to be statistically significant.
- Interaction (Nudge * Fam, coeff = -0.5469, $p = 0.0431$):

- The interaction term between nudges and familiarity with the event is significant ($p = 0.0431$). The negative coefficient indicates that the effectiveness of nudges in creating a sense of urgency decreases as the level of familiarity with the event increases. This suggests that familiarity moderates the impact of nudges.

4. Conclusions:

- Effect of Nudges:

- The results suggest that nudges in the form of evocative symbols and imagery in the advertisement have a positive tendency to increase perceived urgency, with a p-value of 0.0597 approaching significance. Although this effect is not statistically significant at the 5% level, it indicates a trend that could be relevant for further exploration.

- Impact of Familiarity:

- Familiarity with the event was not found to be significant on its own, though its positive coefficient suggests that increased familiarity might influence perceived urgency. However, the lack of statistical significance indicates that this effect is not strong enough to be conclusive.

- Interaction Between Nudge and Familiarity:

- The significant interaction between nudges and familiarity reveals that the impact of nudges decreases as familiarity with the event increases. This suggests that for individuals who are more familiar with the event, nudges may have less impact on perceived urgency.

- Potential for Further Research:

- Despite the overall non-significance of the model, the R^2 value of 5.40% indicates that a portion of the variability in the perceived urgency is accounted for by the model. Further research with larger sample sizes or additional variables could provide deeper insights into the role of nudges and familiarity in influencing participation. Exploring different contexts or more complex interaction patterns may yield more significant findings and enhance the effectiveness of promotional strategies.

Scenario 4:

Matrice

Run MATRIX procedure:

***** PROCESS Procedure for SPSS Version 4.2 beta *****

Written by Andrew F. Hayes, Ph.D. www.afhayes.com
Documentation available in Hayes (2022). www.guilford.com/p/hayes3

Model : 1
Y : s4i_4
X : nudge
W : fam

Sample
Size: 105

OUTCOME VARIABLE:
s4i_4

Model Summary	R	R-sq	MSE	F	df1	df2	p
	.2340	.0548	.2776	1.9505	3.0000	101.0000	.1263

Model	coeff	se	t	p	LLCI	ULCI
constant	3.6959	.4842	7.6336	.0000	2.7355	4.6564
nudge	.8714	.5221	1.6690	.0982	-.1643	1.9071
fam	.2432	.1061	2.2931	.0239	.0328	.4537
Int_1	-.2262	.1137	-1.9889	.0494	-.4518	-.0006

Product terms key:
Int_1 : nudge x fam

Test(s) of highest order unconditional interaction(s):

X*W	R2-chng	F	df1	df2	p
X*W	.0370	3.9557	1.0000	101.0000	.0494

Focal predict: nudge (X)
Mod var: fam (W)

Conditional effects of the focal predictor at values of the moderator(s):

fam	Effect	se	t	p	LLCI	ULCI
4.0000	-.0335	.1671	-.2003	.8417	-.3649	.2980
5.0000	-.2597	.1773	-1.4648	.1461	-.6113	.0920
6.0000	-.4859	.2466	-1.9703	.0515	-.9751	.0033

***** ANALYSIS NOTES AND ERRORS *****

Level of confidence for all confidence intervals in output:
95.0000

W values in conditional tables are the 16th, 50th, and 84th percentiles.

----- END MATRIX -----

Figure 29

H0: The level of familiarity with the event has no significant effect on the increase in desire to attend the event due to the presence of a celebrity.

H1: The level of familiarity with the event has a significant effect on the increase in desire to attend the event due to the presence of a celebrity.

1. Model and Variables:

- Y (Dependent Variable): "s4i_4" - measures the increase in the desire to attend the event as a result of the presence of a celebrity in the advertisement.
- X (Independent Variable): "nudge" - presence or absence of a celebrity in the advertising campaign.
- W (Moderator): "fam" - level of familiarity with the LUISS event from previous years.

2. Summary of the Model:

- R-squared (R^2): 0.0548
 - The R^2 value indicates that the model explains 5.48% of the variability in the increase in desire to participate in the event. Although this is a relatively low value, it shows that a portion of the variability in the outcome is accounted for by the model.
- Mean Squared Error (MSE): 0.2776
 - The MSE represents the average squared difference between observed and predicted values. A lower MSE suggests more accurate predictions; however, the MSE value indicates some degree of prediction error.
- F-statistic: 1.9505 with $p = 0.1263$
 - The p-value associated with the F-statistic ($p > 0.05$) indicates that the overall model is not statistically significant. This implies that there is insufficient evidence to assert that the factors included in the model significantly impact the increase in desire to attend the event.

3. Model Coefficients:

- Nudge (coeff = 0.8714, $p = 0.0982$):
 - The positive coefficient suggests that the presence of a celebrity in the advertisement tends to increase the desire to attend the event. With a p-value of 0.0982, this effect approaches statistical significance ($p < 0.10$), indicating a potential positive trend that warrants further exploration, though it does not reach the conventional 5% significance level.
- Fam (coeff = 0.2432, $p = 0.0239$):
 - The coefficient for familiarity with the event is positive and statistically significant ($p = 0.0239$). This indicates that a higher level of familiarity with the event is associated with an increased desire to participate.

- Interaction (Nudge * Fam, coeff = -0.2262, p = 0.0494):

- The interaction between the presence of a celebrity and the level of familiarity with the event is statistically significant (p = 0.0494). The negative coefficient suggests that the effect of the celebrity's presence on increasing the desire to attend diminishes as familiarity with the event increases. This means that celebrities are less effective in enhancing desire to participate among individuals who are already familiar with the event compared to those who are less familiar.

4. Conditional Effects of Nudge at Different Levels of Familiarity:

- For participants with low familiarity (value 4.0000), the effect of the celebrity is negative but not significant (p = 0.8417).

- At a moderate level of familiarity (value 5.0000), the effect remains negative and not significant (p = 0.1461).

- For participants with high familiarity (value 6.0000), the effect of the celebrity remains negative and approaches significance (p = 0.0515), though it is not fully significant at the 5% level.

4. Conclusions

- Effectiveness of Celebrity Presence:

- The results indicate that the presence of a celebrity in the event's advertisement has a limited and context-dependent impact on increasing the desire to attend. The effect varies based on the level of familiarity with the event.

- Familiarity as a Moderator:

- Familiarity with the event moderates the effect of celebrity presence. As participants become more familiar with the event, the effectiveness of the celebrity in enhancing the desire to participate decreases. This suggests that to maximize the impact of celebrity endorsements, it is crucial to consider the target audience's level of familiarity with the event.

- Implications for Future Research:

- These findings suggest that promotional strategies involving celebrities should be tailored according to the audience's familiarity with the event. Further research could investigate additional variables that might influence the desire to participate, potentially leading to more refined and effective promotional approaches.

Final result of analysis:

○ T-Test Analysis

Scenario 1:

The analysis revealed that the use of cognitive biases and nudges in advertising significantly increased perceived attractiveness ($p < 0.001$), stated likelihood of attending the event ($p = 0.009$), and emotional engagement ($p = 0.006$). However, no significant difference was observed in the propensity to seek additional information about the event ($p = 0.337$). These findings suggest that while nudges enhance interest and emotional involvement, they do not necessarily stimulate active information-seeking behavior, particularly in contexts where participants are already familiar with the event.

Scenario 2:

The use of evocative symbols did not produce significant differences in the perceived attractiveness of the advertisement ($p = 0.271$) or in the likelihood of participation ($p = 0.272$). However, evocative symbols significantly increased emotional engagement ($p = 0.033$), indicating that although these symbols do not directly influence behavioral intentions, they can enhance emotional engagement, a crucial factor in establishing a deeper connection between the audience and the advertised event.

Scenario 3:

The inclusion of urgency and scarcity elements in the advertisement did not significantly affect the perceived attractiveness ($p = 0.601$), the likelihood of attending the event ($p = 0.631$), or emotional engagement ($p = 0.733$). Nevertheless, these elements were perceived as effective in conveying a sense of urgency and scarcity ($p = 0.010$), although this perception did not translate into significant behavioral impact. This suggests that while urgency and scarcity may create a sense of temporal pressure, they are not necessarily determinants of consistent behavioral change.

Scenario 4:

The use of a celebrity in the advertisement led to a significant increase in both perceived attractiveness and emotional engagement, with bilateral significance levels below 0.05. The presence of a celebrity also significantly increased the desire to participate in the event, indicating that nudges involving prominent figures are particularly effective in event advertising. This result underscores

the importance of incorporating well-known personalities to capture public attention and enhance the effectiveness of advertising communication.

Summary and Implications

- Effectiveness of Nudges: The analysis confirms that nudges and cognitive biases are powerful tools for enhancing perceived attractiveness and emotional engagement in event advertising. However, the impact of these tools on specific behaviors, such as information-seeking or decision-making to attend, varies depending on the context and specific elements used. Among the strategies analyzed, the use of celebrities emerged as particularly effective, positively influencing both event perception and behavioral intentions.

- Evocative Symbols: While evocative symbols effectively enhance emotional engagement, they do not significantly impact overall advertisement attractiveness or the propensity to participate in the event. This suggests that evocative symbols can strengthen emotional connection but are not sufficient alone to drive increased participation.

- Urgency and Scarcity: Elements of urgency and scarcity, despite creating a sense of temporal pressure, did not substantially alter the perceived attractiveness of the advertisement or participants' behavior. This demonstrates that while these elements may generate a sense of urgency, they do not always lead to significant behavioral changes.

- Celebrity Endorsement: The inclusion of celebrities in advertisements proved highly effective in improving both attractiveness and emotional engagement. The presence of well-known figures can capture attention and amplify the effectiveness of advertising communication, suggesting that celebrity endorsements are a potent strategy for increasing audience interest and engagement.

In conclusion, advertising campaigns should strategically integrate nudges and cognitive biases, evaluate the use of evocative symbols, and consider including celebrities to optimize communicative impact.

○ Process Model I:

Scenario 1:

- This scenario investigates the effect of event familiarity and the presence of a visual "nudge" in advertising on students' propensity to seek additional information. The results indicate that neither the presence of the "nudge" nor familiarity significantly affects this propensity. The interaction between these factors is not significant, suggesting that familiarity does not substantially alter the effectiveness of the "nudge." Although the model is not significant, an R^2 of 22.13% suggests that other factors may explain the variability in the propensity to seek information.

Scenario 2:

This scenario assesses the impact of event familiarity and the use of evocative images in advertising on the decision to attend the event. The model is not significant, but a positive trend (approaching significance) is observed for evocative images in encouraging attendance. Similarly, event familiarity does not have a significant effect, and the interaction between the two factors does not significantly influence the attendance decision. An R^2 of 17.36% indicates that additional factors could enhance the understanding of these dynamics.

Scenario 3:

This scenario examines the effectiveness of "nudges" in creating a sense of urgency to attend the event, moderated by event familiarity. While the overall model is not significant, the interaction between "nudges" and familiarity is significant. This suggests that "nudges" are less effective in generating urgency among those already familiar with the event. The impact varies with the level of familiarity, indicating the need to tailor promotional strategies based on target knowledge.

Scenario 4:

Here, the effect of a celebrity presence in advertising and event familiarity on the desire to participate is explored. The overall model is not significant, but familiarity has a significant positive effect, and the interaction between celebrity presence and familiarity is also significant. This implies that the effectiveness of a celebrity is diminished among those who are already familiar with the event. These results suggest that promotional strategies involving celebrities should be adjusted according to the audience's familiarity with the event.

Overall, none of the models exhibit strongly significant effects, but several interesting trends emerge. Event familiarity frequently moderates the effectiveness of "nudges" and celebrity presence, indicating that promotional campaigns should consider the level of target knowledge about the event. Further research with larger samples and the inclusion of additional variables could improve the understanding of these dynamics and aid in developing more effective communication strategies.

3.2.2 Interpretation of the effects of nudges on event participation

"There is no scientific evidence for the existence of a buy button. [...] The human brain is not a passive but an active organ, which can be influenced but not conditioned."

(Pirotta, 2019)

The concept of the "buy button" in neuromarketing is a controversial and fascinating topic that has generated discussion among scholars and marketing professionals. Roger Dooley, in his book "Neuromarketing in Practice" (2012), uses this "red button" metaphor to illustrate the idea that neuromarketing techniques, such as brain scans, can identify brain mechanisms that are activated in response to certain marketing stimuli. However, he himself recognizes the limitations of these technologies: scans can show which areas of the brain are involved in processing such stimuli, but they cannot directly manipulate or control consumer decisions. The human brain is not a passive organ that can be "programmed" at will, but is active and complex, capable of being influenced, but not completely conditioned (Pirotta, 2019). In other words, there is no unique and universal "buy button" that can be pressed to automatically induce a purchase decision. This means that although neuromarketing can provide valuable insights into how consumers react to certain advertising messages, it does not guarantee control over their final decisions. This view is supported by a growing scientific literature highlighting the complexity of decision-making processes in the human brain. Cognitive neuroscience studies show that purchasing decisions are influenced by a wide range of factors, including emotions, past experiences, social context, and future expectations. These factors interact in complex and nonlinear ways, making it difficult, if not impossible, to predict a consumer's behavior with certainty based on a single neurophysiological measure alone.

In addition, the "buy button" concept oversimplifies the nature of the human brain, ignoring the crucial role of conscious cognition and self-control. Although neuromarketing can reveal how certain advertising stimuli can trigger an emotional response or attract attention, this does not imply that consumers are devoid of free will. On the contrary, humans possess the ability to reflect on their choices and resist immediate temptations, an ability known as "executive control." This implies that even if an advertisement or, as in this case, the advertisement for an event were extremely persuasive, the consumer could still make a conscious decision not to purchase the product or attend the advertised event. An interesting example of this complexity is research examining the role of emotions in purchasing decisions.

Emotions can significantly influence consumer choices, but the effect of emotions can vary according to context, type of product or service, and individual consumer characteristics. This more nuanced view is consistent with the modern approach to neuromarketing, which focuses less on finding a "buy button" and more on understanding the multiple factors that influence consumer decisions. Marketers using neuromarketing techniques need to be aware of these limitations and the ethical responsibilities involved. Manipulating consumers' emotions and perceptions requires ethical reflection, especially in an age when persuasion techniques are becoming increasingly sophisticated and invasive.

While neuromarketing is no substitute for the need for ethical and responsible communication that respects consumer autonomy, this perspective invites marketers to use this not as a magic wand to influence purchasing decisions, but as a means to create more meaningful and relevant consumer experiences in line with consumers' own values and needs.

3.3 Limitations and future research

One of the main limitations of the research on participation in the Luiss Guido Carli end-of-year event concerns the size and composition of the sample used. Although the number of participants was sufficient to conduct a preliminary analysis, a larger sample size and more diverse composition could have provided more generalizable and representative results. Currently, the research included mainly students and members of the university community, but the sample was not large enough to representatively reflect the entire population of Luiss Guido Carli, which is very large and diverse. In particular, participation was limited to a relatively small portion of the university community, which may not adequately reflect the responses of different demographic and socio-cultural groups. Different age groups, cultural and professional backgrounds may have different reactions to the promotional messages and dynamics of the event. For example, preferences and motivations for attending an event may vary significantly among students of different faculties, alumni, staff members, and other groups. The lack of representativeness of the sample may therefore limit the ability to generalize the results obtained to the entire University community.

Another significant limitation is related to the recruitment method adopted, which may have favored the participation of individuals who were already particularly involved or enthusiastic, thus limiting the diversity of responses and potentially introducing a bias in data collection. The recruitment method may have primarily attracted participants who already had a high interest in the event or the promoted activities, while less involved or less motivated individuals may not have been adequately represented. This bias could influence conclusions about the effectiveness of the promotional strategies used. To improve the generalizability of the results and obtain a more comprehensive and representative view, more representative sampling methods, such as stratified random sampling, would be appropriate. This approach would ensure adequate representation of different demographic and professional categories within the sample, making the results more robust and applicable to the entire university community. In addition, the evaluation of the effectiveness of promotional strategies may have been affected by difficulties in accurately measuring participants' participation and emotional involvement. The tools used to collect data on participants' reactions may not have captured all the nuances of individual experiences. For a deeper and more accurate understanding of the factors influencing participation in university events, it would be useful to employ more advanced and comprehensive measurement tools. Techniques such as facial expression analysis, skin conductance, or functional magnetic resonance imaging (fMRI) could provide a more detailed assessment of participants' emotional reactions.

The tools used to collect data on participants' reactions may not have captured all the nuances of individual experiences. For a deeper and more accurate understanding of the factors influencing participation in university events, it would be useful to employ more advanced and comprehensive measurement tools. Techniques such as facial expression analysis, skin conductance, or functional magnetic resonance imaging (fMRI) could provide a more detailed assessment of participants' emotional reactions. All these results relate to a specific and detailed event. However, the results suggest that the effective use of nudges and biases may steer consumers' choices in specific directions. This opens the possibility of exploring further research on how such techniques can influence participation in different contexts and for other types of events. Future investigations could extend these findings to a variety of scenarios, both specific and general, to better understand the application and effectiveness of nudges and bias in other situations.

In summary, future research could benefit from more diverse sampling and more sophisticated measurement methods. An improved approach to sample selection and data analysis could contribute to a more accurate and comprehensive understanding of the factors that influence participation in university events, offering more precise guidance for developing more effective and representative promotional strategies.

Furthermore, future research could benefit significantly from more diverse sampling and more sophisticated measurement methodologies. It could be crucial to address and consider phenomena such as “peer pressure”. In the context of behavioral economics, “peer pressure” refers to the influence that the opinions, behaviors, and expectations of members of a social group exert on an individual's decisions and actions. This phenomenon is fundamental in understanding how individuals' economic and behavioral choices are shaped by social dynamics and reference groups. “Peer pressure” can induce individuals to conform to the norms and behaviors prevailing within their social group. For instance, the push to follow trends and consumption decisions influences people to align their spending with the expectations of the group, which may include purchasing certain goods, adopting new technologies, or adhering to particular brands or, as in this case, deciding whether or not to participate in any given initiative. Understanding “peer pressure” is essential for designing policies and interventions that encourage more advantageous behaviors and for assessing how social dynamics influence individual decisions. In practice, this may involve leveraging social influences to promote choices that consumers are making.

In this specific case, regarding the analysis provided in this thesis, peer pressure could play a substantial role in participation in university events. Students might be induced to participate not so much out of genuine interest, but to conform to the expectations and behaviors of their peers. This dynamic could skew results by affecting the perception of advertising messages and altering the responses collected. For example, high participation from certain groups might reflect more of a desire for social conformity rather than a genuine appreciation for the event.

To address this issue in future research, it would be beneficial to adopt methodologies that explore the impact of social pressure. Techniques such as:

- *Detailed Surveys*: Including specific questions that explore the degree of perceived social influence on participants' decisions to attend the event. These questions could investigate personal motivations versus external pressures.

- *Qualitative Interviews*: Conducting in-depth interviews with participants to better understand how social dynamics influence their decisions and perceptions.

- *Behavioral Observation*: Utilizing direct observations during the event to identify behaviors that suggest conformity to social expectations.

Incorporating such considerations into future research would not only enhance the validity and generalizability of the results but also enable the development of more effective and inclusive promotional strategies. A thorough and representative understanding of the factors driving participation in university events will provide more precise guidance for optimizing advertising campaigns and improving student engagement.

CONCLUSION

The findings of this empirical research provide a detailed analysis of the differentiated effectiveness of nudges and cognitive biases in influencing event participation, with a specific focus on university events. The study has shown that while nudges are powerful tools for enhancing perceived attractiveness and emotional engagement among potential participants, their impact on actual participation behaviors varies significantly depending on contextual factors and the level of familiarity individuals have with the event in question. Notably, the use of celebrity endorsements has proven highly effective in enhancing not only the positive perception of the event but also the propensity to attend. This suggests that influential figures can act as potent catalysts for generating interest and stimulating audience engagement.

This effect is particularly pronounced in contexts where pre-existing familiarity with the event is low, as celebrities add an element of novelty and appeal that can compensate for the lack of prior knowledge or interest. Conversely, nudges based on scarcity and urgency strategies have shown more complex results. Although these elements successfully created a perception of temporal pressure, they did not lead to a significant increase in participation rates.

This discrepancy may be attributed to audience saturation or skepticism towards such strategies, or to the perception that the imminent deadline is not genuinely binding. Additionally, the effectiveness of these nudges may be diminished by individuals' familiarity with the event: those who have previous experience with the event might be less influenced by feelings of perceived urgency due to their prior knowledge. The findings suggest that familiarity with the event serves as a critical moderating variable, influencing how different nudges are perceived and, consequently, their effectiveness. Therefore, to optimize the effectiveness of advertising campaigns, it is essential to adopt a flexible and layered approach that considers both the type of nudge employed and the level of familiarity and expectations of the target audience. This approach would allow for the tailoring of promotional strategies to maximize their impact on the desired behavior, both in terms of attraction and conversion into active participation. To further explore these dynamics, future research should employ larger samples and include additional variables, such as personal motivations, demographic and socio-cultural factors, and different types of events. Such studies could offer a more comprehensive understanding of the conditions under which nudges and cognitive biases are most effective, contributing to the development of more sophisticated and targeted promotional strategies.

In conclusion, this investigation demonstrates that the strategic integration of nudges and cognitive biases can be a powerful lever for optimizing the effectiveness of advertising communications. These tools can not only increase audience interest and emotional engagement but also encourage active participation in promoted events when used thoughtfully and adaptively. Therefore, a deeper understanding and application of behavioral science principles in the field of marketing can open new avenues for enhancing promotional campaigns and achieving more effective and lasting outcomes.

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