



The effect of Perceived Brand Personality on Brand Loyalty and Social Media Engagement

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Abstract

This study examines how the perception of Aaker's (1997) five dimensions of brand personality (sincerity, excitement, competence, sophistication and ruggedness) predict brand loyalty and social media engagement. Furthermore, the study investigates whether social media engagement mediates the relationship between perceived brand personality and brand loyalty. The study focuses on the beverage industry, featuring eight well-known brands across four different categories. A quantitative study was conducted through an online questionnaire. A total of 162 valid responses was obtained, and each participant answered about one out of the eight possible brands, randomly assigned. The findings reveal that the competence dimension positively predicts brand loyalty the most, followed by sincerity, and marginally sophistication, whereas excitement and ruggedness were found to be nonsignificant in predicting brand loyalty. Regarding social media engagement, only the ruggedness dimension was significant in predicting this construct. Further, the mediation analysis indicates that social media engagement does mediate the relationship between perceived brand personality and brand loyalty. These findings contribute to the existing literature by providing one additional context on the antecedents of brand loyalty, such an important construct for brands, and introducing the role of a new mediator on the relationship between brand personality and brand loyalty.

Key words: Brand personality, social media, social media engagement, brand loyalty, beverages

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Sumário

Este estudo examina como as percepções das cinco dimensões de personalidade de marca (sinceridade, entusiasmo, competência, sofisticação e robustez) de Aaker (1997) preveem lealdade à marca e interação nas redes sociais. Adicionalmente, o estudo investiga se a interação nas redes sociais media a relação da personalidade de marca percebida com a lealdade à marca. O estudo foca-se na indústria das bebidas, usando oito marcas reconhecidas, pertencentes a quatro categorias diferentes. Um estudo quantitativo foi executado através de um questionário online. Um total de 162 respostas válidas foi obtido, e cada participante respondeu sobre uma das oito possíveis marcas, atribuída aleatoriamente. Os resultados revelaram que a dimensão de competência é a que mais positivamente prevê lealdade à marca, seguida da dimensão de sinceridade e, marginalmente, sofisticação, enquanto entusiasmo e robustez não são significativos em prever lealdade à marca. Relativamente à interação nas redes sociais, apenas a dimensão de robustez prevê significativamente esta variável. Adicionalmente, a análise de mediação indica que a interação nas redes sociais media a relação entre personalidade de marca percebida e lealdade à marca. Estes resultados contribuem para a literatura existente ao fornecer um contexto adicional dos antecedentes de lealdade à marca, um conceito tão importante para as marcas, e ao introduzir o papel de um novo mediador na relação entre a personalidade das marca e a lealdade à marca.

Palavras-chave: Personalidade da marca, redes sociais, interações nas redes sociais, lealdade à marca, bebidas

Título: O efeito da personalidade de marca percebida na lealdade à marca e interação nas redes sociais

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List of Abbreviations

ANOVA	Analysis of variance
CI	Coefficient interval
Coeff.	Unstandardized coefficient
F	F-statistic
H	Hypothesis
M	Sample mean
p	P-value
r	Pearson correlation coefficient
R^2	R-squared
RQ	Research question
SD	Standard deviation
SE	Standard error
t	T-statistic
β	Standard coefficients beta
η^2	Eta-squared

1. Introduction

1.1 Background and problem statement

A strong branding strategy is fundamental to create a distinctive identity in the market. It enables consumers to identify and distinguish an offering from another. Moreover, it plays a fundamental role in building trust, credibility, and brand loyalty (Jahan et al., 2024).

A pivotal component of the branding strategy is the brand personality. Brand personality refers to the set of human characteristics associated with a brand (Aaker, 1997), and plays a major role in the creation of emotional connections with the consumers (Seimiene, 2012).

Brand loyalty is of extreme importance for brands to obtain sustainable competitive advantage and growth. Loyal customers are more likely to be willing to pay higher prices, to engage in positive word-of-mouth, and to be less price sensitive (Farhat & Mustafa Khan, 2011). Moreover, the cost of attracting a new customer can be up to six times higher than the cost of retaining an old one (Rosenberg & Czepiel, 1984).

It has been proven that a favourable brand personality leads to brand image enhancement, purchase intention, and brand-relationship strength (Eisend & Stokburger-Sauer, 2013). Furthermore, studies have already explored the impact of brand personality on other constructs, including brand loyalty, however, these results have proven to be inconsistent, and highly dependent on the industry and context. In addition, the mediating role of social media engagement on the relationship between brand personality and brand loyalty is underexplored. Therefore, this study will investigate how the perceived brand personality drives brand loyalty, with the mediating effect of social media engagement.

This study will be applied to the beverage industry. This is a highly competitive and very profitable industry in the global economy context (Statista, 2025a). This industry encompasses some of the world's most well-known brands, which consumers interact with on a daily basis both offline and online, and are present on the consumers' daily experiences.

1.2 Aim and Scope

The aim of this dissertation is to analyse the extent to which consumers' perceptions of brand personality drive social media engagement behaviour with the brand and foster brand loyalty. To achieve this objective, the three following research questions are addressed:

RQ1: How does perceived brand personality predict brand loyalty?

RQ2: Does perceived brand personality predict social media engagement?

RQ3: Does social media engagement impact the relationship between perceived brand personality and brand loyalty?

In order to examine the research questions presented above, the study will focus on the beverage industry. Eight well-known beverage brands were selected, divided across four categories: beer (Super Bock and Sagres), carbonated cola (Coca-Cola and Pepsi), energy (Red Bull and Monster Energy) and carbonated fruit-flavoured (Sumol and Fanta). These brands were selected based on their high consumption levels, brand value, and recognition among consumers, as well as being representative of different traits of brand personality, both in social media and in offline environments.

1.3 Research approach and method

This dissertation follows a deductive research approach. Firstly, a literature review of the topics under study is conducted, gathering secondary data to construct the hypotheses. Afterwards, a quantitative online survey that gathered 162 valid responses was executed. In this study, perceived brand personality is the independent variable, composed of five different dimensions, and brand loyalty is the dependent variable. In addition to the social media engagement mediator, there is one control variable of brand familiarity. The statistical analysis is undertaken using the SPSS software. A descriptive and exploratory analysis was conducted, and the hypotheses were tested using multiple regressions and Process Model 4.

1.4 Relevance

This study will contribute to the advancement of the existing research on brand loyalty drivers, namely brand personality. This research uncovers which of Aaker's five brand personality dimensions predicts brand loyalty the most, and introduces the mediating role of social media engagement, which very few studies have covered. Moreover, it applies the study to the beverage industry which, so far, has been understudied.

Additionally, this dissertation aims to enable brand managers to improve understanding on how their communication and social media strategies can differently impact online engagement and brand loyalty. It will allow brands to plan their communication strategies more efficiently, according to how they want to be perceived by the audience, as well as build stronger relationships with their consumers.

1.5 Dissertation outline

This dissertation is structured in six different chapters. This present chapter offers an overview of the context and background, states the research problem, delineates the aim and scope of the study, and presents the research questions, approach and relevance. In the second chapter, an extensive literature review on brand loyalty, brand personality, and social media engagement, is conducted, and the hypotheses are proposed. The third chapter describes the methodology used to conduct the quantitative study in order to gather primary data. Afterwards, on the fourth chapter, the results are analysed. Chapter five addresses the main discussion of the results. Lastly, chapter six covers the implications, limitations and conclusions of the study.

2. Literature Review

This chapter presents a synthesis of existing literature and research on brand loyalty, brand personality, and social media engagement. Moreover, it addresses the industry that will be taken into account in this study and defines the research hypotheses.

2.1 Brand Loyalty

Brand loyalty has been recognized as a key determinant of brand equity (Gounaris, 2003). Excepting a few product categories, one of the key roles of marketing strategy is to make consumers repurchase a brand through preference (Knox & Walker, 2001). Therefore, the construct of brand loyalty is of major importance, which explains why it has been researched for many years.

According to Cengiz and Akdemir-Cengiz (2016), in the early stages of this construct's research, brand loyalty was mostly defined as a repurchasing action, the now called behavioural loyalty. Afterwards, some researchers contested a different definition, as repurchasing actions can be solely related to convenience or other circumstances such as availability. They proposed attitudinal loyalty, describing it as a psychological commitment that a consumer makes in the purchase act, such as an intention to purchase and an intention to recommend, without necessarily taking the actual purchase behaviour into account. Nowadays, the most universally accepted definition is a multi-domain approach, encompassing both the behavioural and attitudinal elements. This is the conceptualization that the present study will consider.

Brand loyalty is thus defined as a firmly held dedication to a favourite product or service reliably in the future, despite situational pressures and marketing efforts that can lead to switching actions, repeated transactions and interaction (Sathyanarayan & Subburaj, 2021; Oliver, 1999). This is, a tendency to be loyal to a brand shown by the intention to purchase it as a primary choice (Yoo & Donthu, 2001; Oliver 1999). This is a construct which encompasses two elements, behavioural loyalty and attitudinal loyalty. Behavioural loyalty is the act of repeat purchase, whereas attitudinal loyalty involves a strong internal disposition (Dick & Basu, 1994; Day 1969).

Oliver (1999) proposed a framework for the development of brand loyalty over time that encompasses four phases: cognition, affect, conation and action. In this first stage, cognition, loyalty is formed based on information available to the consumer which suggest that one brand

is preferable over others. It is loyalty based on brand belief. Secondly, at the affective stage, there is the development of a liking or attitude toward the brand, based on satisfied usage occasions. The conative stage involves a brand-specific commitment to repurchase. It is about the desire to repurchase which, however, may be an anticipated but unrealized action. Lastly, the action stage refers to the conversion of this intention into action, accompanied by the desire to overcome the constraints that might prevent the act of taking place.

2.1.1 Measuring Brand Loyalty

A consumer-based brand equity scale was developed by Yoo and Donthu (2001), based on the foundations proposed by Aaker (1991) and Keller (1993). This consumer-based brand equity scale encompasses scales for the dimensions of brand loyalty, brand awareness, perceived quality, and brand associations. The brand loyalty dimension scale is composed of three items, that measure attitudinal loyalty.

On the other hand, Chaudhuri & Holbrook (2001), in the context of studying how brand trust and affect influence brand performance through brand loyalty, proposed a scale to measure both attitudinal and behavioural loyalty. The scale is composed of two items for each loyalty dimension.

2.1.2 Antecedents of Brand Loyalty

Brand trust and brand affect have been found to positively predict brand loyalty (Chaudhuri & Holbrook, 2001). These authors characterize brand trust as the willingness of the average consumer to rely on the ability of the brand to perform its stated function, and brand affect as a brand's potential to evoke a positive emotional response in the average consumer as a result of its use. Brand trust, by creating an exchange relationship between the brand and the consumers that is highly valued, drives commitment and thus loyalty. Similarly, regarding brand affect, strong and positive affective responses generate greater loyalty. Likewise, brand satisfaction will also lead to brand commitment, which in turn will lead to loyalty (Bloemer & Kasper, 1995).

Furthermore, brand experience, which is the sensations, feelings, cognitions, and behavioural responses evoked by brand-related stimuli, if positive, will make consumers want to repeat those experiences, buy the brand again and recommend it to someone (Josko Brakus et al., 2009).

With respect to the effect of brand personality on brand loyalty, findings remain inconsistent, as some studies indicate that brand personality contributes to brand loyalty, whereas others report that there is no direct relationship (Villagra et al., 2021). This indicates that the effect of brand personality on brand loyalty may be context-dependent, and therefore the present study will contribute by providing a new contextual setting.

2.1.3 Consequences of Brand Loyalty

Brand loyalty is fundamental for companies to obtain sustainable competitive advantage. Firstly, the marketing costs are lower for brand-loyal customers. Then, brand extensions entail lower risk, and returns on investment are higher. Moreover, loyal customers exhibit lower probability of switching brands as they have fewer reasons to search for alternatives (Gounaris, 2003). This leads to higher market share and the ability to apply premium prices (Chaudhuri & Holbrook, 2001), and positive word-of-mouth (Gounaris, 2003).

Brand loyalty is recognized as an asset that is crucial for the long-term success of brands. Given its importance, it is also relevant to understand the factors that strengthen brand loyalty. Although extensive research on the antecedents of brand loyalty has been conducted, findings regarding the effect of brand personality on this construct remain inconsistent, revealing that this effect may depend on the context in which the study is inserted. Subsequently, to better understand this relationship, the concept of brand personality is reviewed.

2.2 Brand Personality

Brand personality is a construct that is composed of the experiences, interactions, and communication with the brand, which determine how consumers interpret the brands' personality traits (Ghorbani et al., 2022).

Brand personality allows a brand to differentiate itself within a product category, driving consumer preference. These attributes represent emotions or feelings elicited by the brand (Keller, 1993) and, through it, consumers express themselves and their ideal selves (Aaker, 1997). Therefore, the brand personality must resonate with the one from the ideal target, as consumers tend to choose brands that resemble with their own self-concept (Shneor, 2009). Aaker (1997) defined brand personality as the set of human characteristics associated with a brand.

2.2.1 The Brand Personality Framework by Aaker

Aaker (1997) states that personality traits become associated with a brand directly through the people associated with it, namely the user's imagery, the employees, and brand endorses. Nevertheless, the author suggests that this association can also be created indirectly, via product-related attributes, product category associations, brand name, logo, advertising style, price, and distribution channel. To develop the framework, the author derived traits from three main sources: psychology, namely the Big Five model, marketing, and qualitative research conducted in the U.S.A..

Using a factor analysis, Aaker thus defined a framework of five brand personality dimensions: Sincerity, Excitement, Competence, Sophistication, and Ruggedness, composed by fifteen facets, which are in turn made of forty-two personality traits. This framework conceptualizes that the Sincerity dimension is associated with the facets of being down-to-earth, honest, wholesome, and cheerful. Excitement relates to being daring, spirited, imaginative, and up-to-date. Competence lies on being reliable, intelligent and successful. Sophistication is linked to being upper class and charming. Lastly, Ruggedness is tied to being outdoorsy and tough.

Yet, the framework has faced criticism over the years. Austin et al. (2003) contend the generalizability of Aaker's model, by defending that it does not generalize to individual brands, but rather product categories. In addition, Oklevik et al. (2020) advocate that the meaning of the different personality traits may differ across product categories as, for example, "wholesome" has a different meaning in the context of food and clothing. Moreover, Azoulay and Kapferer (2003) suggest that Aaker's framework includes demographic characteristics, such as gender and age, and class, which are not included in psychology's personality scales. Further, they argue that framework illustrates ethnocentrism by using traits such as "western" or "small town", which interpretation may differ across cultures. Similarly, Aaker et al. (2001) found that there are brand personality dimensions specific of each culture.

Despite these limitations, Aaker's brand personality framework remains the most appropriate tool for measuring brand personality (Folorunsho Ajeyalemi & Dixon-Ogbechie, 2020), and will therefore be used in this study. Further, extensive prior research has investigated the antecedents and consequences of brand personality based on this framework, which will be reviewed subsequently.

2.2.2 Antecedents of Brand Personality

Wang et al. (2025) proposed three main groups of antecedents of brand personality: consumer-related antecedents, brand-related antecedents, and relationship-attribute related antecedents. Firstly, consumer-related antecedents include consumer personality and self-confidence. Secondly, brand-related antecedents encompass advertising, divided into complexity, consistency, and hedonic benefit claim, as well as branding, product design, and extension fit. Lastly, relationship-attribute related antecedents consist of prior relationship experience. All antecedents showed a positive, significant effect on brand personality, except for consumer self-confidence which was shown to be nonsignificant.

2.2.3 Consequences of Brand Personality

According to Eisend and Stokburger-Sauer (2013), brand attitude, brand image, brand relationship strength, brand commitment, purchase intention, and purchase behaviour are all predicted by brand personality. Furthermore, the authors show that all the five dimensions of brand personality predict the same effect on brand image, brand relationship strength, and purchase intention, whereas for brand attitude and brand commitment, the sincerity and competence dimensions have the strongest influence. Regarding purchase behaviour, competence shows the greatest effect. Overall, excitement and ruggedness show the weakest influence on these variables.

2.3 Social Media

Social media is a group of internet-based applications that allow for the creation of content by the end-users (Kaplan & Haenlein, 2010). The number of social media users worldwide accounts to 5.44 billion, and this number is expected to continue increasing, reaching 6.46 billion users in 2029 (Statista, 2025b). Social media platforms allow brands to increase their visibility, and they provide the means for brands to directly interact with their customers online, and vice-versa (Schivinski & Dabrowski, 2014). They contribute to more enduring and intimate relationships between the brands and the consumers (Dessart, 2017; Sashi, 2012).

2.4 Social Media Engagement

Customer engagement is defined as a psychological state that occurs by virtue of interactive, co-creative customer experiences with a brand (Hollebeek et al., 2014; Brodie et al., 2011). Accordingly, social media engagement is a context-specific occurrence of this concept (Dessart,

2017; Brodie et al., 2013). Schivinski et al. (2016) define social media engagement as a set of brand-related online activities on the part of the consumer that vary in the degree to which the consumer interacts with social media and engages in the consumption, contribution, and creation of media content.

Social media engagement can be divided in three components: consumption, contribution, and creation of brand-related media (Schivinski et al., 2016). The consumption dimension is the lowest level of engagement, referring to passively viewing brand-related media without actively taking part in it, namely reading, watching, or following brands on social media. As for contribution, it relates to the contribution of consumers to brand-related content by participating in media previously created by the brand or other individuals, comprising peer-to-peer and peer-to-content interactions about the brand. This includes liking, commenting, or sharing brand-related content on social media. Lastly, the creation dimension consists of the creation and publication of brand-related content by consumers, namely user-generated content. The creation dimension denotes the highest level of engagement. It is important to note that the consumption of brand-related content leads to contribution, which subsequently gives rise to creation.

To measure social media engagement, this study will use the framework proposed by Schivinski et al. (2016), since it captures the three dimensions of social media engagement and will allow for a complete assessment of this construct.

2.4.1 Antecedents of Social Media Engagement

Dessart (2017) found online interaction propensity, the willingness to communicate with others, and attitude towards community participation as drivers of social media engagement. This is because consumers with high positive attitudes towards new media tend to exhibit high levels of new media brand engagement (Hennig-Thurau et al., 2010). The author also found product involvement to drive this type of engagement.

2.4.2 Consequences of Social Media Engagement

As a consequence of social media engagement, brand trust and brand commitment have both shown to emerge (Dessart, 2017). This arises from the fact that in the process of engagement, consumers allow brands to showcase their quality as a relationship partner. Furthermore, these are constructs that increase over the long term and repeated occurrences, and therefore, if a brand exhibits behaviours that allow consumers to satisfactorily engage with it, trust will arise.

Regarding its effect on Brand Loyalty, Lou and Xie (2021) conducted a study in which they found that the experiential evaluation of consumers in the context of social media engagement positively affects brand loyalty.

2.5 The beverage industry

The global beverage industry generated a revenue of \$196.99bn in 2024 (Statista, 2025c), representing a remarkably profitable industry in the global context (Statista, 2025a). Within this industry, some key players include Nestlé S.A., Anheuser-Busch InBev, The Coca-Cola Company, and PepsiCo (Statista, 2025d). This is a highly competitive sector, and companies must foster innovation to thrive (Harapko, 2025).

Within this industry, consumer preferences are consistently evolving, and the low switching costs can impose a threat for the brands. Switching costs represent the costs associated for the consumer with changing from one brand to another (Burnham et al., 2003). For this reason, it is important that these brands establish an emotional connection with their consumers in order to stimulate loyalty that goes beyond functional product features. One way brands can do this is through their brand personality (Aaker, 1997). For instance, Coca-Cola is usually associated with being cool and real, whereas Pepsi with being young and exciting (Aaker, 1997).

In essence, brand loyalty is an important construct for brands, and because of this, has been studied for many years. Some studies have discovered brand personality to positively predict brand loyalty, whereas others show that its influence has no significance, which creates a gap for applying this research to the beverage industry context, which has been unexplored so far. Furthermore, with the increasing relevance of social media as a marketing tool for brands, it is also pertinent to assess if engagement in this context can also be predicted by brand personality.

The conceptual model of this study positions Perceived Brand Personality as the independent variable, composed of five different dimensions (Sincerity, Excitement, Competence, Ruggedness and Sophistication), Brand Loyalty as the dependent variable, and Social Media Engagement as a mediator in this relationship.

2.6 Hypotheses Formulation

There has been a number of studies that have showed that brand personality positively affects brand loyalty. Brakus et al. (2009) found that brand personality positively impacts loyalty, and Lin (2010) concluded that certain brand personality dimensions had a significant positive

influence on brand loyalty. Accordingly, Lin (2010) verified Competence and Sophistication to be the dimensions that predict brand loyalty the most. Therefore, the following hypotheses are proposed:

H1: Perceived brand personality will positively predict brand loyalty.

H1a: Sincerity will positively predict brand loyalty.

H1b: Excitement will positively predict brand loyalty.

H1c: Competence will positively predict brand loyalty.

H1d: Sophistication will positively predict brand loyalty.

H1e: Ruggedness will positively predict brand loyalty.

H1f: Competence and Sophistication will predict brand loyalty the most (compared to Sincerity, Excitement and Ruggedness).

Regarding the effects of brand personality on social media engagement, research is not extensive. Nevertheless, Kara and Durulmuş (2025) developed a study where they found that the brand personality dimensions of a university have a partial, significant and positive effect on its social media engagement. The present study hypothesizes the dimensions expected to predict social media engagement the most to coincide with those that will predict brand loyalty the most. Consequently, the following hypotheses are developed:

H2: Perceived brand personality will positively predict social media engagement.

H2a: Sincerity will positively predict social media engagement.

H2b: Excitement will positively predict social media engagement.

H2c: Competence will positively predict social media engagement.

H2d: Sophistication will positively predict social media engagement.

H2e: Ruggedness will positively predict social media engagement.

H2f: Competence and Sophistication will predict social media engagement the most (compared to Sincerity, Excitement and Ruggedness).

Given that this study anticipates that perceived brand personality will positively predict social media engagement, and past research has concluded that the experimental evaluation of a brand in the context of social media will positively predict brand loyalty (Lou & Xie, 2021), this study proposes the role of social media engagement as a mediator in the relationship between perceived brand personality and brand loyalty. Accordingly, the following hypothesis is formulated:

H3: Social media engagement will mediate the relationship between perceived brand personality and brand loyalty.

3. Methodology

This section describes the methodological approach undertaken in order to determine the effects of Perceived Brand Personality on Brand Loyalty and Social Media Engagement in the beverage industry. It includes a detailed characterization of the sample, an overview of the research design, the operationalization of the variables and the measurement instruments used in the online survey.

This study follows a deductive research approach, this is, relies on existing knowledge to build a conceptual structure and hypotheses, which are then tested empirically on a specific sample (Collis & Hussey, 2021). It employs a quantitative data gathering, where the online survey was pre-tested by ten respondents, who gave constructive feedback, essentially to clarify question formulation, before being sent to other respondents. In this study, Perceived Brand Personality is the independent variable composed of five different dimensions, Social Media Engagement is the mediator, and Brand Loyalty is the dependent variable. Moreover, the control variable of brand familiarity was used.

3.1 Sample

An a priori power analysis using G*Power 3.1 indicated that a total sample of 92 participants is required to detect a medium effect size of $f^2 = 0.15$ with 80% power at $\alpha = .05$ for a multiple linear regression.

The questionnaire was open for data collection for four weeks, and gathered a total of 192 responses. After removing incomplete responses and responses that did not pass the attention check, 177 answers were considered. Afterwards, responses in which the participants answered “Not familiar at all” to the question “How familiar are you with this brand?” were removed. This is because each participant answered every question about one brand, and not being familiar with will make the responses not valid. At the end, a total of 162 valid answers was obtained.

From these, 27 participants answered the questions about Sumol, 22 about Super Bock, 20 about Sagres and Coca-Cola, 19 about Pepsi, Red Bull, and Fanta, and 16 about Monster Energy.

Out of the 162 participants, 56.8% were female and 43.2% were male. Moreover, 26.5% were between 18 and 24 years of age, 8.0% between 25 and 34, 4.3% between 35 and 44, 42.6% between 45 and 54, 15.4% between 55 and 64, 1.9% between 65 and 74, and 1.2% between 75

and 84. No respondents were 85 years old or older. Regarding the highest level of completed education, for 13.0% of respondents it was high school, for 39.5% a bachelor's degree, for 43.2% a master's degree, and 4.3% of participants held a PhD or an even higher level of education.

Furthermore, 29.0% of participants spend, on average, less than one hour daily on social media, 27.8% spend between one and two hours, 21.6% between two and three hours, 16.7% spend three to four hours, and 4.9% spend more than four hours on average per day on social media. Regarding the level of familiarity with the brand, 13.6% were slightly familiar with the brand, 27.8% were moderately familiar, 41.4% were very familiar, and 17.3% were extremely familiar. No remaining participants were not familiar at all with the brand as these responses were considered invalid and were, therefore, cleaned. Finally, 43.8% of participants never consume the brands' products, 36.4% consume the products once a month, 10.5% two to three times a month, 5.6% once a week, and 3.7% several times a week.

3.2 Study Design

This study employs an online questionnaire using the Qualtrics platform. The questionnaire was distributed online via social media, and was designed in English.

The research employs a quantitative study with the aim is of examining the relationship between the variables, without manipulating any of them. Each participant only answered questions about one randomly assigned brand out of the eight possible. The questions were the same for all participants, answered through an online survey on Qualtrics.

3.2.1 Selection Criteria

Eight well-known beverage brands were selected for this study. These brands are divided across four different categories: beer, carbonated cola, energy, and carbonated fruit-flavoured.

There are two brands representing each category, that are well-known and present different brand personality traits. For the beer category, Super Bock and Sagres were selected. Secondly, Coca-Cola and Pepsi represent the carbonated cola drinks category. Thirdly, Red Bull and Monster Energy were the chosen brands for the energy drinks category. Lastly, Sumol and Fanta were appointed as the two brands in the carbonated fruit-flavoured drinks category.

The brands were selected according to different criteria, as there was no data available to apply the same criteria across all categories. The two beer brands, Super Bock and Sagres, were

selected as they were the two most consumed beer brands in Portugal the past year (Statista, 2025e). Coca-Cola, Pepsi, Red Bull, and Monster Energy were selected as they are the first, second, third, and fifth most valuable non-alcoholic beverage brands worldwide in 2024 (Statista, 2025f). In this dataset, the fourth spot belonged to a Chinese brand, Nongfu Spring, which is not a highly consumed brand in Portugal and, therefore, was replaced by the next brand in the ranking. Lastly, Fanta and Sumol were chosen because they are well-known among consumers and present distinctive brand personality traits. All these brands are very recognizable among consumers worldwide. Despite being Portuguese brands, Sagres, Super Bock, and Sumol are sold in numerous countries, in line with the other selected brands.

3.3 Measurement instruments

In this study, perceived brand personality is the independent variable composed of five different dimensions: sincerity, excitement, competence, sophistication, and ruggedness. Social media engagement is the mediator, and brand loyalty is the dependent variable. All three constructs were measured through a 7-point Likert scale, in which participants were asked how strongly they agree with the items (1=Strongly Disagree, 7=Strongly Agree). Likert scales were chosen as they have proven to allow for reliability and validity (Joshi et al., 2015).

3.3.1 Independent variable

This study will evaluate perceived brand personality rather than simply brand personality. This is because the study aims to capture the consumers' perceptions about the personality traits of the eight brands, rather than how the brands expect to be perceived. The Perceived Brand Personality was measured using Aaker's (1997) brand personality scale. This is a 15-item scale, where each item corresponds to a brand personality facet. There are four items relating to the Sincerity and Excitement dimensions, three to Competence, and two to Sophistication and Ruggedness. This scale includes items such as "I consider this brand to be down-to-earth" and "I consider this brand to be reliable". The Cronbach's alpha for the Sincerity dimension was .70 and for the Excitement dimension was .81. Both are in line with the threshold of .70, which indicates that the internal consistency is acceptable (Bland & Altman, 1997). For the Competence dimension it was .68, which is below the threshold value. However, these items belong to Aaker's (1997) brand personality scale, which is commonly acceptable in literature, and therefore no items were removed, in order to assure scale validity. Regarding Sophistication, the correlation coefficient was .49, and for Ruggedness it was .29. Both

correlation coefficients were significant ($p < .001$, in both cases), which also indicates acceptable internal consistency.

3.3.2 Dependent Variable

Brand Loyalty was assessed using a combination of Yoo and Donthu (2001) attitudinal loyalty scale, using the items: “I consider myself to be loyal to this brand”, “This brand would be my first choice”, and “I will not buy other brands if this brand is available at the store”, and four items from Chaudhuri and Holbrook (2001) scale: “I will buy this brand the next time I buy a drink”, “I intend to keep purchasing this brand” (behavioural loyalty), “I am committed to this brand”, and “I would be willing to pay a higher price for this brand over other brands” (attitudinal loyalty). This is because this study aims to capture brand loyalty as a single, multi-dimensional construct, and the use of both scales will allow for a complete representation of the construct, as well as enhance construct validity. The Cronbach’s alpha of the whole construct is .96, which suggests excellent internal consistency (Bland & Altman, 1997).

3.3.3 Mediator

To evaluate the level of Social Media Engagement, this paper applies a subscale of Schivinski et al. (2016) Consumer’s Engagement with Brand-related Social Media Content (CEBSC) Scale. It employs the following items: “I read posts related to this brand on social media”, “I follow this brand on social media” (consumption dimension); “I like posts related to this brand on social media”, “I comment on posts related to this brand” (contribution dimension); “I initiate posts related to this brand on social media”, “I post content that show this brand on social media” (creation dimension). The Cronbach’s alpha of the whole construct is .82, above the .70 threshold, which signals good internal consistency (Bland & Altman, 1997).

3.3.4 Control variable

Participants were asked about their brand familiarity to reduce bias. The control variable was measured through a multiple-choice question, in order to ensure simplicity and minimize respondent fatigue.

Brand familiarity was examined using the question “How familiar are you with this brand?”, where the possible responses were “Not familiar at all”, “Slightly familiar”, “Moderately familiar”, “Very familiar”, and “Extremely familiar”.

3.3.5 Demographic questions

The demographics section included questions regarding participants' age, gender, and highest completed level of education, all measured using a multiple-choice question. These questions were created using Qualtrics pre-defined suggestions, in order to assure comprehension and universality.

In addition, participants were also asked about their social media usage frequency and brand consumption frequency. Social media usage frequency was evaluated through the question "On average, how much time do you spend daily on social media?", and the set of answers was "Less than 1 hour", "1-2 hours", "2-3 hours", "3-4 hours", "More than 4 hours". Brand consumption frequency was assessed via the question "How often do you consumer products from this brand?". The corresponding array of responses encompassed "Never", "Once a month", "2-3 times a month", "Once a week", and "Several times a week".

3.4 Procedure

The questionnaire was written in English and designed using the Qualtrics platform. The data collection process was conducted over four weeks and the survey was distributed via the social media platforms WhatsApp and Instagram. All items were of mandatory response as to prevent missing data from decreasing the reliability of the statistical analysis.

Participants begin the survey by being presented with a brief explanation of the survey's purpose, being assured anonymity, guaranteeing they are over eighteen years of age, and providing consent to proceed.

Afterwards, participants were presented with the brand they were going to respond the items about. This brand was randomly assigned by Qualtrics, out of the eight possible options mentioned above.

On the next section, the respondents answered questions about their perceived brand personality traits of that brand. This section encompassed the fifteen items from Aaker's (1997) brand personality scale.

Following, participants answered the items regarding their social media engagement with the brand using six items from Schivinski et al. (2016) Consumer's Engagement with Brand-related Social Media Content (CEBSC) scale.

Subsequently, participants indicated their brand loyalty to the assigned brand, consisting of seven items.

Thereafter, respondents answer the questions about brand familiarity, social media usage frequency, and brand consumption frequency.

Participants then responded to the demographic questions about their age, gender, and highest level of complete education.

Finally, respondents were thanked for their participation and assured their answers had been saved.

4. Results

4.1 Descriptive analysis

Descriptive statistics for all study variables are presented in Table 1. Means and standard deviations were calculated for each variable.

Pearson correlations were calculated to examine the relationships between all variables. The five brand personality dimensions were significantly, positively correlated with each other. Moreover, Sincerity was positively correlated with Social Media Engagement, $r = .24, p = 0.02$, and Brand Loyalty, $r = .50, p < .001$. Excitement was also positively correlated with Social Media Engagement, $r = .22, p = .005$, and Brand Loyalty, $r = .36, p < .001$. Competence was positively correlated with Social Media Engagement, $r = .27, p < .001$, and Brand Loyalty, $r = .52, p < .001$. Further, Sophistication was positively correlated with Social Media Engagement, $r = .29, p < .001$, and Brand Loyalty, $r = .38, p < .001$. Ruggedness was positively correlated with Social Media Engagement, $r = .40, p < .001$, and Brand Loyalty, $r = .29, p < .001$. Lastly, Social Media Engagement was positively correlated with Brand Loyalty, $r = .42, p < .001$.

Table 1

Descriptive Statistics and Correlations for Study Variables.

Variable	M	SD	1	2	3	4	5	6
1. Sincerity	4.70	1.04	---	---	---	---	---	---
2. Excitement	4.94	1.16	.47***	---	---	---	---	---
3. Competence	5.26	0.99	.53***	.56***	---	---	---	---
4. Sophistication	3.71	1.29	.32***	.38***	.48***	---	---	---
5. Ruggedness	4.85	1.17	.36***	.56***	.40***	.42***	---	---
6. Social Media Engagement	2.29	1.14	.24**	.22**	.27***	.29***	.40***	---
7. Brand Loyalty	2.91	1.78	.50***	.36***	.52***	.38***	.29***	.42***

Note: *M* = mean; *SD* = standard deviation; *r* = Pearson correlation; * $p < .05$; ** $p < .01$; *** $p < .001$.

4.2 Hypotheses Testing

In order to test H1, a multiple regression was conducted. The aim is to test if Sincerity, Excitement, Competence, Sophistication, Ruggedness explain variance in Brand Loyalty. The

model was significant, $F(5, 156) = 17.06, p < .001, R^2 = .35$. Competence ($\beta = .30, p < .001$) and Sincerity ($\beta = .29, p < .001$) were significant, Sophistication ($\beta = .14, p = .07$) was marginal, Excitement ($\beta = -.00, p = .97$) and Ruggedness ($\beta = .01, p = .86$) were nonsignificant. Competence was the strongest predictor of brand loyalty.

Table 2

Coefficients for regression on Brand Loyalty.

	Coeff.	SE	β	t	p
Constant	-3.005	0.696	---	-4.318	< .001
Sincerity	0.495	0.134	.290	3.690	< .001
Excitement	-0.005	0.136	-.003	-0.034	.973
Competence	0.534	0.158	.297	3.374	< .001
Sophistication	0.190	0.105	.138	1.803	.073
Ruggedness	0.021	0.124	.014	0.173	.863

Furthermore, this same analysis was also undertaken taking into account the covariate of brand familiarity. The model was significant, $F(6, 155) = 14.84, p < .001, R^2 = .37$. It did not change the significance of the brand personality dimensions, as Sincerity ($\beta = .25, p = .003$) and Competence ($\beta = .25, p = .006$) remained significant, Sophistication ($\beta = .14, p = .064$) marginally, and Excitement and Ruggedness continued to be nonsignificant.

Table 3

Coefficients for regression on Brand Loyalty with Brand Familiarity covariate.

	Coeff.	SE	β	t	P
Constant	-3.311	0.716	---	-4.624	< .001
Sincerity	0.427	0.140	.250	3.058	.003
Excitement	0.030	0.136	.020	0.222	.824
Competence	0.455	0.164	.253	2.771	.006
Sophistication	0.196	0.105	.142	1.866	.064
Ruggedness	0.019	0.123	.013	0.155	.877

Brand Familiarity	0.237	0.142	.123	1.664	.098
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In this regard, H1a and H1c are supported, whereas H1b and H1e are rejected. H1, H1d, and H1f are partially supported.

Moreover, for H2, in order to test whether Sincerity, Excitement, Competence, Sophistication, and Ruggedness explain variance in Social Media Engagement, a multiple regression was performed. The model was significant, $F(5, 156) = 7.28, p < .001, R^2 = .19$. Sincerity ($\beta = .08, p = .37$), Excitement ($\beta = -.10, p = .30$), Competence ($\beta = .09, p = .37$), and Sophistication ($\beta = .11, p = .19$) were nonsignificant, while Ruggedness ($\beta = .34, p < .001$) was significant. Ruggedness is the only predictor of Social Media Engagement.

Table 4

Coefficients for regression on Social Media Engagement.

	Coeff.	SE	β	t	p
Constant	-0.157	0.498	---	-0.316	.752
Sincerity	0.086	0.096	.079	0.894	.373
Excitement	-0.100	0.097	-.102	-1.030	.304
Competence	0.103	0.113	.090	0.909	.365
Sophistication	0.099	0.075	.112	1.309	.192
Ruggedness	0.336	0.089	.344	3.789	< .001

Adding the covariate of brand familiarity to the model, the model was found to be significant, $F(6, 155) = 6.08, p < .001, R^2 = .19$. Ruggedness ($\beta = .34, p < .001$) remained the only significant predictor.

Table 5

Coefficients for regression on Social Media Engagement with Brand Familiarity covariate.

	Coeff.	SE	β	t	p
Constant	-0.219	0.517	---	-0.424	.672

Sincerity	0.072	0.101	.066	0.716	.475
Excitement	-0.093	0.098	-.095	-0.944	.347
Competence	0.087	0.119	.076	0.735	.463
Sophistication	0.100	0.076	.113	1.320	.189
Ruggedness	0.335	0.089	.344	3.774	< .001
Brand Familiarity	0.048	0.103	.039	0.464	.643

This indicates that H2e is supported, while H2a, H2b, H2c, H2d and H2f are rejected. Overall, H2 is only partially supported.

4.2.1 Mediation analysis

The mediation analysis was only undertaken for the Ruggedness dimension, as it was the only brand personality dimension that had been proved to predict Social Media Engagement.

To test whether Social Media Engagement mediates the effect of Ruggedness on Brand Loyalty, a mediation analysis using PROCESS Model 4 with 5,000 bootstrap samples was conducted.

Ruggedness significantly predicted Social Media Engagement, $b = 0.39$, $SE = 0.07$, $t(160) = 5.49$, $p < .001$. Social Media Engagement significantly predicted Brand Loyalty, $b = 0.56$, $SE = 0.12$, $t(159) = 4.62$, $p < .001$. The direct effect of Ruggedness on Brand Loyalty was nonsignificant, direct = 0.23, $SE = 0.12$, 95% CI [-0.01, 0.46]. The indirect effect was significant, indirect = 0.22, boot $SE = 0.07$, 95% CI [0.10, 0.38]. Therefore, Social Media Engagement mediates the effect of Ruggedness on Brand Loyalty.

When adding the brand familiarity covariate to the mediation analysis, Ruggedness significantly predicted Social Media Engagement, $b = 0.37$, $SE = 0.07$, $t(159) = 5.24$, $p < .001$. Social Media Engagement significantly predicted Brand Loyalty, $b = 0.51$, $SE = 0.12$, $t(158) = 4.40$, $p < .001$. The direct effect of Ruggedness on Brand Loyalty was nonsignificant, direct = 0.18, $SE = 0.11$, 95% CI [-0.04, 0.40]. However, the indirect effect was significant, indirect = 0.19, boot $SE = 0.07$, 95% CI [0.08, 0.33]. Hence, Social Media Engagement also mediates the effect of Ruggedness on Brand Loyalty when taking brand familiarity as a covariate.

Therefore, H3 is supported, whereas H1 and H2 are only partially supported.

4.3 Exploratory Analysis

In order to assess if there is a specific brand personality dimension associated with each beverage category, a Repeated Measures ANOVA was run. The beer ($M = 5.57$, $SD = 0.70$), carbonated cola drinks ($M = 5.49$, $SD = 1.11$), and fruit-flavoured drinks ($M = 4.96$, $SD = 1.13$) categories scored the highest means in the Competence dimension, whereas the energy drinks scored the highest mean in the Excitement dimension ($M = 5.46$, $SD = 1.00$). Besides competence, beer was also considered to be sincere ($M = 5.23$, $SD = 0.88$) and rugged ($M = 5.21$, $SD = 0.94$), carbonated cola to be exciting ($M = 4.82$, $SD = 1.34$) and fruit-flavoured drinks to be sincere ($M = 4.71$, $SD = 0.83$). As for the energy drinks category, besides being considered exciting, it was also considered to be rugged ($M = 5.19$, $SD = 1.13$). All beverage categories scored the lowest means in the Sophistication dimension ($M = 3.99$, $SD = 1.44$ for beer, $M = 3.74$, $SD = 1.55$ for carbonated cola, $M = 3.63$, $SD = 0.89$ for energy drinks and $M = 3.48$, $SD = 1.15$ for fruit-flavoured drinks). Mauchly's Test of Sphericity shows $p < .001$, which indicates that sphericity is rejected. Applying the Greenhouse-Geisser, $p < .001$, we can reject the null hypotheses that the personality dimensions of the beverage categories do not significantly differ from each other. There is a significant effect of the perceived brand personality on the dimensions, $F(3.45, 545.31) = 83.59$, $p < .001$ partial eta squared = .346. There is a significant effect of the beverage category on the personality dimensions, $F(3, 158) = 4.30$, $p = .006$, partial eta squared = .075. The interaction between the perceived brand personality and the beverage category on the dimensions was significant ($p < .001$), $F(10.35, 545.31) = 5.35$, partial eta squared = .092. We can conclude that the interaction between the brand personality dimension and the beverage category is significant, and therefore the brand personality dimension differs between different beverage categories.

Moreover, to test whether the beverage category influences brand loyalty, a one-way ANOVA was conducted. The independent variable was beverage category (beer, carbonated cola drinks, energy drinks, and carbonated fruit-flavoured drinks), and the dependent variable was brand loyalty. The effect of beverage category on brand loyalty was significant, $F(3, 85.86) = 6.55$, $p < .001$, $\eta^2 = .09$. Beer ($M = 3.39$, $SD = 2.05$) reported the highest brand loyalty, followed by the carbonated cola category ($M = 3.36$, $SD = 1.95$), the carbonated fruit-flavoured category ($M = 2.79$, $SD = 1.46$), and lastly the energy drinks category ($M = 2.02$, $SD = 1.24$). On the test of homogeneity of variances, homogeneity of variances is rejected ($p < .001$). Therefore, using the Welch test, $p < .001$, which means that the null hypothesis of loyalty being equal in every beverage category is rejected. In particular, the mean difference of brand loyalty of the

beverages categories is significant for beer and energy drinks ($p = .003$), and for carbonated cola and energy drinks ($p = .005$). Hence, the beverage category influences brand loyalty.

Table 6

Mean Differences of Brand Loyalty between beverage categories

Category (I)	Category (J)	Mean Difference (I-J)	<i>p</i>
Beer	Carbonated cola	0.036	1.000
	Energy drinks	1.375	.003
	Fruit-flavoured	0.602	.356
Carbonated cola	Beer	-0.036	1.000
	Energy drinks	1.339	.005
	Fruit-flavoured	0.566	.430
Energy drinks	Beer	-1.375	.003
	Carbonated cola	-1.339	.005
	Fruit-flavoured	-0.772	.190
Fruit-flavoured	Beer	-0.602	.356
	Carbonated cola	-0.566	.430
	Energy drinks	0.772	.190

Lastly, to test whether the beverage category influences social media engagement, a one-way ANOVA was performed. The independent variable was beverage category (beer, carbonated cola drinks, energy drinks, and carbonated fruit-flavoured drinks), and the dependent variable was social media engagement. The effect of beverage category on social media engagement was significant, $F(3, 158) = 3.35$, $p = .021$, $\eta^2 = .06$. Beer ($M = 2.68$, $SD = 1.22$) reported the highest social media engagement, followed by the cola-flavoured drinks category ($M = 2.39$, $SD = 1.17$), the fruit-flavoured drinks category ($M = 2.10$, $SD = 1.15$), and lastly the energy drinks category ($M = 1.95$, $SD = 0.84$). On the test of homogeneity of variances, homogeneity of variances is not rejected ($p = .345$). More specifically, the mean differences of social media engagement was significant between the beer and energy drinks category ($p = .024$). Therefore, the beverage category influences social media engagement.

Table 7

Mean Differences of Social Media Engagement between beverage categories

Category (I)	Category (J)	Mean Difference (I-J)	<i>p</i>
Beer	Carbonated cola	0.294	.637
	Energy drinks	0.730	.024
	Fruit-flavoured	0.581	.073
Carbonated cola	Beer	-0.294	.637
	Energy drinks	0.437	.336
	Fruit-flavoured	0.287	.637
Energy drinks	Beer	-0.730	.024
	Carbonated cola	-0.437	.336
	Fruit-flavoured	-0.149	.933
Fruit-flavoured	Beer	-0.581	.073
	Carbonated cola	-0.287	.637
	Energy drinks	0.149	.933

5. Discussion

This study was undertaken to investigate the effects of Perceived Brand Personality on Social Media Engagement and Brand Loyalty. In addition, it was also tested whether Social Media Engagement acts as a mediator between Perceived Brand Personality and Brand Loyalty. This section aims to answer the three research questions proposed, based on the test of the hypotheses and the literature review conducted.

Perceived Brand Personality affects Brand Loyalty in the Sincerity and Competence dimensions. With regard to Social Media Engagement, Ruggedness is the only dimension that predicts this construct. In addition, it was revealed that Social Media Engagement mediates the relationship between Ruggedness and Brand Loyalty. Finally, when adding the brand familiarity covariate to the three models, there were no main substantial differences when compared to the models without the covariate.

Regarding the exploratory analysis, it was shown that the brand personality dimension differs between each beverage category. Beer, carbonated cola drinks, and fruit-flavoured drinks were associated with the Competence dimension the most, while energy drinks were more associated with Excitement. Further, results revealed that the beverage category influences brand loyalty and social media engagement. In both cases, beer had the biggest effect, followed by carbonated cola drinks, then fruit-flavoured drinks, and lastly, energy drinks.

5.1 How does Perceived Brand Personality predict Brand Loyalty?

Regarding the first research question, it can be concluded that Competence predicts Brand Loyalty the most, followed by Sincerity, and marginally Sophistication. Excitement and Ruggedness were found to be nonsignificant.

Sincere brands are grounded in traits such as honesty and realism (Aaker, 1997). Because of this, these brands may be perceived as being more trustworthy, which can explain the greater long-term commitment. This stems from the fact that brand trust is a predictor of brand loyalty (Chaudhuri & Holbrook, 2001).

Regarding Competence, it is related to being reliable, intelligent, successful and secure (Aaker, 1997). According to Oliver (1999) product superiority and high quality generate strong brand preference. Brands with strong Competence personalities may be associated with greater performance satisfaction and functional value, which fosters loyalty.

As for Sophistication, these brands tend to be glamorous, upper class and charming (Aaker, 1997). Brand personality is a means for consumers to express themselves and their ideal selves (Aaker, 1997), which fosters emotional attachment, and in turn brand loyalty (Malär et al., 2011). By resonating with the consumers' actual or aspirational identities, brands that portray Sophistication traits generate loyalty.

On the other hand, Excitement's lack significance in predicting Brand Loyalty is in accordance with Sung and Kim (2010) findings on its effects on brand trust and brand affect, antecedents of brand loyalty (Chaudhuri & Holbrook, 2001). Furthermore, the authors also suggest that consumers may perceive Rugged brands as mostly utilitarian and therefore may not create long-term emotional connections with these brands, which can explain why this dimension was also revealed to be nonsignificant.

5.2 Does Perceived Brand Personality predict Social Media Engagement?

Cao et al. (2023) suggest that consumers expected rugged brands to be less engaging on social media. However, the findings from the present study may suggest otherwise. A multiple regression revealed that only the Ruggedness dimension positively predicts Social Media Engagement, whereas Sincerity, Excitement, Competence, and Sophistication were found to be nonsignificant. Based on these findings, one can expect that brands that showcase personalities with Ruggedness traits will have higher engagement levels on social media.

Beyond cognitive, engagement also requires emotional and behavioural resources from the customers (Hollebeek, 2011). This can explain why Competence was found to be nonsignificant in predicting social media engagement, as this dimension is more associated with functional attributes and performance-oriented features, and Berger and Milkman (2012) have shown that, in social media, content that lacks high-arousal emotions is likely to perform worse than the one that evokes high-arousal emotions.

Similarly, Sincerity also tends to evoke low-arousal responses such as calmness, which are less-likely to stimulate the antecedents of social media engagement (online interaction propensity, willingness to communicate with others, and attitude toward community participation) found by Dessart (2017), as they are less prone to activating to the engagement behaviour.

Likewise, Sophistication is also prone to elicit low-arousal rather than high-arousal emotions. In addition, some brands that portray sophisticated traits, such as the case of luxury brands, can

create a gap to the audience due to their exclusiveness and social distance, which can result in a discouragement to interact.

As for Excitement, although this dimension may evoke high-arousal emotions, these emotions may not translate into online interaction propensity, willingness to communicate with others and attitude toward community participation (Dessart, 2017), as it can be considered a more individualistic-oriented dimension. This is because this dimension includes traits such as uniqueness and independence (Aaker, 1997).

Aaker's (1997) brand personality scale indicates that Ruggedness is associated with being outdoorsy, masculine, and western (outdoorsy facet), as well as tough and rugged (tough facet). These traits may be more appealing to consumers with adventurous or active lifestyles, and can attract community-oriented followers that share these interests, which can be exemplified by the case of Harley-Davidson. This brand has shown commitment to build a community of consumers that share the same lifestyle of the brand (Fournier & Lee, 2009). This may foster attitude toward community participation and therefore lead to social media engagement (Dessart, 2017).

5.3 Does Social Media Engagement impact the relationship between Perceived Brand Personality and Brand Loyalty?

As Ruggedness was the only brand personality dimension shown to predict Social Media Engagement, the mediation analysis was conducted only for this dimension. The mediation analysis proved that Social Media Engagement does mediate the relationship between Ruggedness and Brand Loyalty.

Lou and Xie (2021) suggest that consumers' engagement with content affects their experiential evaluation and leads to brand loyalty. Furthermore, according to Dessart (2017), social media engagement leads to brand trust and brand commitment. In turn, Chaudhuri and Holbrook (2001) showed that brand trust leads to brand loyalty. With regard to brand commitment, some authors consider this construct to be similar to attitudinal loyalty (Morgan & Hunt, 1994). This is consistent with the findings from the mediation analysis and can explain that Ruggedness can foster Brand Loyalty through Social Media Engagement.

6. Implications, limitations, and conclusions

6.1 Theoretical and managerial implications

The findings of this study contribute to advancements both in the theoretical and practical studies on the antecedents of brand loyalty.

Regarding the theoretical implications of the study, by applying the effects of brand personality on brand loyalty to the beverage industry, an industry in which this topic has been understudied so far, this research fosters advancements in the study of this relationship. In this research, Competence predicted brand loyalty the most, followed by Sincerity, and Sophistication, which was marginally significant.

The study also tests whether brand personality predicts social media engagement or not. This was proven to occur only in the Ruggedness dimension.

Furthermore, this study advances prior research by introducing a new mediator, social media engagement, in the relationship between brand personality and brand loyalty. It was proven that social media engagement mediates the relationship between the Ruggedness dimension and brand loyalty.

As for the managerial implications, the results show that in order to stimulate brand loyalty, brands should showcase Sincerity and Competence traits. This is particularly important in the beverage industry, where consumers' switching costs are relatively low and, in order to foster loyalty that goes beyond product features such as taste and design, brands must create emotional connections with the consumers. After understanding which brand personalities drive loyalty the most, brands should tailor their communication and marketing strategies accordingly.

Moreover, with the increasing importance of social media nowadays as a means for brands to directly communicate with their consumers, when stimulating engagement in their social media platforms, brands should exhibit Ruggedness traits.

6.2 Limitations and future research

Despite contributing to the advancement on brand loyalty research, this study presents certain limitations that should be acknowledged.

The study uses a cross-sectional research design, and therefore cannot infer causal relationships between the variables. Besides, brand personality and brand loyalty are dynamic rather than static constructs, and respondents' evaluation of them evolves over time. Further research could

apply a longitudinal study on these constructs, accompanying the participants over a certain timeframe, to assess whether their evaluation of the constructs changes over time.

Another limitation lies on the usage of convenience sampling, as respondents were recruited through personal networks. Future studies could include a broader number of respondents from greatly diverse backgrounds.

Lastly, the study was centred on the beverage industry, and results may not apply to other industries. Additional research could test this conceptual model in other industries as to determine whether the results vary or not according to different sectors.

6.3 Conclusion

This study focused on the effects of Perceived Brand Personality on Social Media Engagement and Brand Loyalty in the beverage industry. Results showed that Sincerity, Competence and, marginally, Sophistication positively predict Brand Loyalty, whereas only Ruggedness positively predicts Social Media Engagement. Furthermore, results prove that the introduction of the mediating role of Social Media Engagement in the relationship between Ruggedness and Brand Loyalty is significant. Consequently, the first two hypotheses proposed were partially supported, and the last hypothesis was fully supported. The results reinforce that loyalty, a construct of great importance for brands, is influenced by several components of the branding strategy rather than just one isolated construct. In order to foster it, brands must align their communication and marketing strategies to appeal to their target audience, both in offline and online channels.

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8. Appendix

Appendix 1: Data analysis on SPSS

Appendix 1.1: Sample demographics

You will now be asked to answer questions about a beverage brand.

Please read each question carefully and respond based on your honest opinion about this brand. There are no right or wrong answers. It is your personal perceptions that matter.

Please consider the following brand when answering the ...

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Super Bock	22	13.6	13.6	13.6
	Sagres	20	12.3	12.3	25.9
	Coca-Cola	20	12.3	12.3	38.3
	Pepsi	19	11.7	11.7	50.0
	Red Bull	19	11.7	11.7	61.7
	Monster Energy	16	9.9	9.9	71.6
	Sumol	27	16.7	16.7	88.3
	Fanta	19	11.7	11.7	100.0
	Total	162	100.0	100.0	

Please select your gender.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	70	43.2	43.2	43.2
	Female	92	56.8	56.8	100.0
	Total	162	100.0	100.0	

Please select your age.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18 - 24	43	26.5	26.5	26.5
	25 - 34	13	8.0	8.0	34.6
	35 - 44	7	4.3	4.3	38.9
	45 - 54	69	42.6	42.6	81.5
	55 - 64	25	15.4	15.4	96.9
	65 - 74	3	1.9	1.9	98.8
	75 - 84	2	1.2	1.2	100.0
	Total	162	100.0	100.0	

Please select your highest level of completed education.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	High school	21	13.0	13.0	13.0
	Bachelor's Degree	64	39.5	39.5	52.5
	Master's Degree	70	43.2	43.2	95.7
	PhD or higher	7	4.3	4.3	100.0
	Total	162	100.0	100.0	

On average, how much time do you spend daily on social media?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 1 hour	47	29.0	29.0	29.0
	1-2 hours	45	27.8	27.8	56.8
	2-3 hours	35	21.6	21.6	78.4
	3-4 hours	27	16.7	16.7	95.1
	More than 4 hours	8	4.9	4.9	100.0
	Total	162	100.0	100.0	

Please indicate your level of familiarity with this brand.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Slightly familiar	22	13.6	13.6	13.6
	Moderately familiar	45	27.8	27.8	41.4
	Very familiar	67	41.4	41.4	82.7
	Extremely familiar	28	17.3	17.3	100.0
	Total	162	100.0	100.0	

How often do you consume products from this brand?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	71	43.8	43.8	43.8
	Once a month	59	36.4	36.4	80.2
	2-3 times a month	17	10.5	10.5	90.7
	Once a week	9	5.6	5.6	96.3
	Several times a week	6	3.7	3.7	100.0
	Total	162	100.0	100.0	

Appendix 1.2: Descriptive analysis

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Sincerity	162	1.00	6.75	4.7006	1.04474
Excitement	162	1.00	7.00	4.9367	1.15973
Competence	162	2.00	7.00	5.2593	.99134
Sophistication	162	1.00	7.00	3.7068	1.29217
Ruggedness	162	1.00	7.00	4.8519	1.16748
SocialMediaEngagement	162	1.00	6.50	2.2891	1.13811
BrandLoyalty	162	1.00	7.00	2.9145	1.78162
Valid N (listwise)	162				

		Correlations						
		Sincerity	Excitement	Competence	Sophistication	Ruggedness	SocialMediaEngagement	BrandLoyalty
Sincerity	Pearson Correlation	1	.466**	.532**	.316**	.356**	.237**	.495**
	Sig. (2-tailed)		<.001	<.001	<.001	<.001	.002	<.001
	N	162	162	162	162	162	162	162
Excitement	Pearson Correlation	.466**	1	.561**	.378**	.562**	.221**	.359**
	Sig. (2-tailed)	<.001		<.001	<.001	<.001	.005	<.001
	N	162	162	162	162	162	162	162
Competence	Pearson Correlation	.532**	.561**	1	.478**	.401**	.266**	.521**
	Sig. (2-tailed)	<.001	<.001		<.001	<.001	<.001	<.001
	N	162	162	162	162	162	162	162
Sophistication	Pearson Correlation	.316**	.378**	.478**	1	.420**	.286**	.376**
	Sig. (2-tailed)	<.001	<.001	<.001		<.001	<.001	<.001
	N	162	162	162	162	162	162	162
Ruggedness	Pearson Correlation	.356**	.562**	.401**	.420**	1	.398**	.292**
	Sig. (2-tailed)	<.001	<.001	<.001	<.001		<.001	<.001
	N	162	162	162	162	162	162	162
SocialMediaEngagement	Pearson Correlation	.237**	.221**	.266**	.286**	.398**	1	.419**
	Sig. (2-tailed)	.002	.005	<.001	<.001	<.001		<.001
	N	162	162	162	162	162	162	162
BrandLoyalty	Pearson Correlation	.495**	.359**	.521**	.376**	.292**	.419**	1
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	<.001	<.001	
	N	162	162	162	162	162	162	162

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

Appendix 1.3: Hypothesis testing

Appendix 1.3.1: Multiple regression using Brand Loyalty as the dependent variable and Sincerity, Excitement, Competence, Sophistication and Ruggedness as the independent variables

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.595 ^a	.354	.333	1.45522

a. Predictors: (Constant), Ruggedness, Sincerity, Sophistication, Competence, Excitement

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	180.683	5	36.137	17.064	<.001 ^b
	Residual	330.357	156	2.118		
	Total	511.039	161			

a. Dependent Variable: BrandLoyalty

b. Predictors: (Constant), Ruggedness, Sincerity, Sophistication, Competence, Excitement

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-3.005	.696		-4.318	<.001
	Sincerity	.495	.134	.290	3.690	<.001
	Excitement	-.005	.136	-.003	-.034	.973
	Competence	.534	.158	.297	3.374	<.001
	Sophistication	.190	.105	.138	1.803	.073
	Ruggedness	.021	.124	.014	.173	.863

a. Dependent Variable: BrandLoyalty

Appendix 1.3.2: Multiple regression using Brand Loyalty as the dependent variable, Sincerity, Excitement, Competence, Sophistication and Ruggedness as the independent variables, and brand familiarity as the covariate

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.604 ^a	.365	.340	1.44703

a. Predictors: (Constant), Please indicate your level of familiarity with this brand., Ruggedness, Sophistication, Sincerity, Excitement, Competence

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	186.483	6	31.081	14.843	<.001 ^b
	Residual	324.556	155	2.094		
	Total	511.039	161			

a. Dependent Variable: BrandLoyalty

b. Predictors: (Constant), Please indicate your level of familiarity with this brand., Ruggedness, Sophistication, Sincerity, Excitement, Competence

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-3.311	.716		-4.624	<.001
	Sincerity	.427	.140	.250	3.058	.003
	Excitement	.030	.136	.020	.222	.824
	Competence	.455	.164	.253	2.771	.006
	Sophistication	.196	.105	.142	1.866	.064
	Ruggedness	.019	.123	.013	.155	.877
	Please indicate your level of familiarity with this brand.	.237	.142	.123	1.664	.098

a. Dependent Variable: BrandLoyalty

Appendix 1.3.3: Multiple regression using Social Media Engagement as the dependent variable and Sincerity, Excitement, Competence, Sophistication and Ruggedness as the independent variables

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.435 ^a	.189	.163	1.04107

a. Predictors: (Constant), Ruggedness, Sincerity, Sophistication, Competence, Excitement

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	39.467	5	7.893	7.283	<.001 ^b
	Residual	169.077	156	1.084		
	Total	208.544	161			

a. Dependent Variable: SocialMediaEngagement

b. Predictors: (Constant), Ruggedness, Sincerity, Sophistication, Competence, Excitement

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.157	.498		-.316	.752
	Sincerity	.086	.096	.079	.894	.373
	Excitement	-.100	.097	-.102	-1.030	.304
	Competence	.103	.113	.090	.909	.365
	Sophistication	.099	.075	.112	1.309	.192
	Ruggedness	.336	.089	.344	3.789	<.001

a. Dependent Variable: SocialMediaEngagement

Appendix 1.3.4: Multiple regression using Social Media Engagement as the dependent variable, Sincerity, Excitement, Competence, Sophistication and Ruggedness as the independent variables and brand familiarity as the covariate

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.436 ^a	.190	.159	1.04370

a. Predictors: (Constant), Please indicate your level of familiarity with this brand., Ruggedness, Sophistication, Sincerity, Excitement, Competence

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	39.702	6	6.617	6.075	<.001 ^b
	Residual	168.842	155	1.089		
	Total	208.544	161			

a. Dependent Variable: SocialMediaEngagement

b. Predictors: (Constant), Please indicate your level of familiarity with this brand., Ruggedness, Sophistication, Sincerity, Excitement, Competence

Coefficients ^a					
Model		Unstandardized Coefficients		Standardized Coefficients	Sig.
		B	Std. Error	Beta	
1	(Constant)	-.219	.517		.672
	Sincerity	.072	.101	.066	.475
	Excitement	-.093	.098	-.095	.347
	Competence	.087	.119	.076	.463
	Sophistication	.100	.076	.113	.189
	Ruggedness	.335	.089	.344	<.001
	Please indicate your level of familiarity with this brand.	.048	.103	.039	.643

a. Dependent Variable: SocialMediaEngagement

Appendix 1.3.5: Mediation analysis

Run MATRIX procedure:

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

Written by Andrew F. Hayes, Ph.D. www.afhayes.com

Documentation available in Hayes (2022). www.guilford.com/p/hayes3

Model : 4

Y : BrandLoy

X : Ruggedne

M : SocialMe

Sample

Size: 162

OUTCOME VARIABLE:

SocialMe

Model Summary

R	R-sq	MSE	F	df1	df2	p
.3982	.1586	1.0967	30.1538	1.0000	160.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	.4056	.3527	1.1499	.2519	-.2910	1.1022

Ruggedne .3882 .0707 5.4912 .0000 .2486 .5278

OUTCOME VARIABLE:

BrandLoy

Model Summary

R	R-sq	MSE	F	df1	df2	p
.4404	.1940	2.5907	19.1310	2.0000	159.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	.5210	.5444	.9570	.3400	-.5541	1.5961
Ruggedne	.2282	.1185	1.9266	.0558	-.0057	.4621
SocialMe	.5619	.1215	4.6246	.0000	.3219	.8019

***** DIRECT AND INDIRECT EFFECTS OF X ON Y

Direct effect of X on Y

Effect	se	t	p	LLCI	ULCI
.2282	.1185	1.9266	.0558	-.0057	.4621

Indirect effect(s) of X on Y:

Effect	BootSE	BootLLCI	BootULCI
SocialMe	.2181	.0716	.0992 .3766

***** ANALYSIS NOTES AND ERRORS

Level of confidence for all confidence intervals in output:

95.0000

Number of bootstrap samples for percentile bootstrap confidence intervals:

5000

WARNING: Variables names longer than eight characters can produce incorrect output
when some variables in the data file have the same first eight characters. Shorter

variable names are recommended. By using this output, you are accepting all risk and consequences of interpreting or reporting results that may be incorrect.

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

Appendix 1.3.5: Mediation analysis with brand familiarity covariate

Run MATRIX procedure:

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

Written by Andrew F. Hayes, Ph.D. www.afhayes.com

Documentation available in Hayes (2022). www.guilford.com/p/hayes3

Model : 4

Y : BrandLoy

X : Ruggedne

M : SocialMe

Covariates:

Q7

Sample

Size: 162

OUTCOME VARIABLE:

SocialMe

Model Summary

R	R-sq	MSE	F	df1	df2	p
.4095	.1677	1.0916	16.0198	2.0000	159.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	.0444	.4456	.0997	.9207	-.8357	.9245

Ruggedne .3739 .0714 5.2391 .0000 .2329 .5148

Q7 .1189 .0900 1.3211 .1884 -.0588 .2966

OUTCOME VARIABLE:

BrandLoy

Model Summary

R	R-sq	MSE	F	df1	df2	p
.5272	.2780	2.3353	20.2780	3.0000	158.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	-1.1820	.6518	-1.8135	.0717	-2.4694	.1054
Ruggedne	.1799	.1130	1.5917	.1134	-.0433	.4031
SocialMe	.5101	.1160	4.3976	.0000	.2810	.7392
Q7	.5674	.1323	4.2881	.0000	.3061	.8288

***** DIRECT AND INDIRECT EFFECTS OF X ON Y

Direct effect of X on Y

Effect	se	t	p	LLCI	ULCI
.1799	.1130	1.5917	.1134	-.0433	.4031

Indirect effect(s) of X on Y:

Effect	BootSE	BootLLCI	BootULCI
SocialMe	.1907	.0657	.0754 .3345

***** ANALYSIS NOTES AND ERRORS

Level of confidence for all confidence intervals in output:

95.0000

Number of bootstrap samples for percentile bootstrap confidence intervals:

5000

WARNING: Variables names longer than eight characters can produce incorrect output when some variables in the data file have the same first eight characters. Shorter variable names are recommended. By using this output, you are accepting all risk and consequences of interpreting or reporting results that may be incorrect.

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

Appendix 1.4: Exploratory analysis

Appendix 1.4.1: Repeated Measures ANOVA

Descriptive Statistics				
	Category	Mean	Std. Deviation	N
Sincerity	1.00	5.2321	.88240	42
	2.00	4.6667	1.17867	39
	3.00	4.0857	1.01268	35
	4.00	4.7120	.82994	46
	Total	4.7006	1.04474	162
Excitement	1.00	5.1667	.92668	42
	2.00	4.8205	1.33642	39
	3.00	5.4643	.99842	35
	4.00	4.4239	1.10538	46
	Total	4.9367	1.15973	162
Competence	1.00	5.5714	.69565	42
	2.00	5.4872	1.10513	39
	3.00	5.0286	.81798	35
	4.00	4.9565	1.12570	46
	Total	5.2593	.99134	162
Sophistication	1.00	3.9881	1.43768	42
	2.00	3.7436	1.54695	39
	3.00	3.6286	.89396	35
	4.00	3.4783	1.15449	46
	Total	3.7068	1.29217	162
Ruggedness	1.00	5.2143	.93797	42
	2.00	4.6026	1.32377	39
	3.00	5.1857	1.13167	35
	4.00	4.4783	1.10532	46
	Total	4.8519	1.16748	162

Mauchly's Test of Sphericity ^a							
Measure: MEASURE_1							
Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Greenhouse-Geisser	Epsilon ^b Huynh-Feldt	Lower-bound
factor1	.733	48.551	9	<.001	.863	.901	.250

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. Design: Intercept + Category
Within Subjects Design: factor1

b. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

Tests of Within-Subjects Effects

Measure: MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
factor1	Sphericity Assumed	224.109	4	56.027	83.592	<.001	.346
	Greenhouse-Geisser	224.109	3.451	64.934	83.592	<.001	.346
	Huynh-Feldt	224.109	3.605	62.169	83.592	<.001	.346
	Lower-bound	224.109	1.000	224.109	83.592	<.001	.346
factor1 * Category	Sphericity Assumed	43.049	12	3.587	5.352	<.001	.092
	Greenhouse-Geisser	43.049	10.354	4.158	5.352	<.001	.092
	Huynh-Feldt	43.049	10.814	3.981	5.352	<.001	.092
	Lower-bound	43.049	3.000	14.350	5.352	.002	.092
Error(factor1)	Sphericity Assumed	423.597	632	.670			
	Greenhouse-Geisser	423.597	545.313	.777			
	Huynh-Feldt	423.597	569.560	.744			
	Lower-bound	423.597	158.000	2.681			

Pairwise Comparisons

Measure: MEASURE_1

(I) Category	(J) Category	Mean Difference (I-J)	Std. Error	Sig. ^b	95% Confidence Interval for Difference ^b	
1.00	2.00	.370 [*]	.182	.043	.011	.730
	3.00	.356	.187	.059	-.014	.726
	4.00	.625 [*]	.175	<.001	.280	.970
2.00	1.00	-.370 [*]	.182	.043	-.730	-.011
	3.00	-.014	.191	.940	-.391	.362
	4.00	.254	.178	.155	-.097	.606
3.00	1.00	-.356	.187	.059	-.726	.014
	2.00	.014	.191	.940	-.362	.391
	4.00	.269	.184	.145	-.094	.631
4.00	1.00	-.625 [*]	.175	<.001	-.970	-.280
	2.00	-.254	.178	.155	-.606	.097
	3.00	-.269	.184	.145	-.631	.094

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Tests of Between-Subjects Effects

Measure: MEASURE_1

Transformed Variable: Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Intercept	17689.791	1	17689.791	5283.805	<.001	.971
Category	43.139	3	14.380	4.295	.006	.075
Error	528.972	158	3.348			

Appendix 1.4.2: One-way ANOVA of beverage category on brand loyalty

Descriptives

BrandLoyalty

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
1.00	42	3.3912	2.05210	.31665	2.7517	4.0306	1.00	7.00
2.00	39	3.3553	1.94579	.31158	2.7246	3.9861	1.00	6.86
3.00	35	2.0163	1.24239	.21000	1.5895	2.4431	1.00	5.29
4.00	46	2.7888	1.46020	.21530	2.3552	3.2224	1.00	7.00
Total	162	2.9145	1.78162	.13998	2.6380	3.1909	1.00	7.00

Tests of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
BrandLoyalty	Based on Mean	8.171	3	158	<.001
	Based on Median	5.058	3	158	.002
	Based on Median and with adjusted df	5.058	3	145.529	.002
	Based on trimmed mean	8.022	3	158	<.001

ANOVA

BrandLoyalty

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	46.082	3	15.361	5.220	.002
Within Groups	464.957	158	2.943		
Total	511.039	161			

ANOVA Effect Sizes^{a,b}

		Point Estimate	95% Confidence Interval	
			Lower	Upper
BrandLoyalty	Eta-squared	.090	.014	.170
	Epsilon-squared	.073	-.004	.154
	Omega-squared Fixed-effect	.072	-.004	.153
	Omega-squared Random-effect	.025	-.001	.057

a. Eta-squared and Epsilon-squared are estimated based on the fixed-effect model.

b. Negative but less biased estimates are retained, not rounded to zero.

Robust Tests of Equality of Means

BrandLoyalty

	Statistic ^a	df1	df2	Sig.
Welch	6.550	3	85.859	<.001
Brown-Forsythe	5.278	3	138.682	.002

a. Asymptotically F distributed.

Multiple Comparisons

Dependent Variable: BrandLoyalty

Tukey HSD

(I) Category	(J) Category	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1.00	2.00	.03585	.38147	1.000	-.9547	1.0264
	3.00	1.37483*	.39261	.003	.3554	2.3943
	4.00	.60234	.36611	.356	-.3483	1.5530
2.00	1.00	-.03585	.38147	1.000	-1.0264	.9547
	3.00	1.33898*	.39942	.005	.3019	2.3761
	4.00	.56649	.37340	.430	-.4031	1.5361
3.00	1.00	-1.37483*	.39261	.003	-2.3943	-.3554
	2.00	-1.33898*	.39942	.005	-2.3761	-.3019
	4.00	-.77249	.38478	.190	-1.7716	.2266
4.00	1.00	-.60234	.36611	.356	-1.5530	.3483
	2.00	-.56649	.37340	.430	-1.5361	.4031
	3.00	.77249	.38478	.190	-.2266	1.7716

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

Appendix 1.4.3: One-way ANOVA of beverage category on social media engagement

Descriptives

SocialMediaEngagement

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1.00	42	2.6825	1.21909	.18811	2.3026	3.0624	1.00	6.50
2.00	39	2.3889	1.17125	.18755	2.0092	2.7686	1.00	6.00
3.00	35	1.9524	.83975	.14194	1.6639	2.2408	1.00	4.17
4.00	46	2.1014	1.14530	.16886	1.7613	2.4416	1.00	6.00
Total	162	2.2891	1.13811	.08942	2.1125	2.4657	1.00	6.50

Tests of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
SocialMediaEngagement	Based on Mean	1.115	3	158	.345
	Based on Median	.750	3	158	.524
	Based on Median and with adjusted df	.750	3	146.172	.524
	Based on trimmed mean	.962	3	158	.412

ANOVA

SocialMediaEngagement

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	12.478	3	4.159	3.352	.021
Within Groups	196.066	158	1.241		
Total	208.544	161			

ANOVA Effect Sizes^{a,b}

		Point Estimate	95% Confidence Interval	
			Lower	Upper
SocialMediaEngagement	Eta-squared	.060	.001	.129
	Epsilon-squared	.042	-.018	.113
	Omega-squared Fixed-effect	.042	-.018	.112
	Omega-squared Random-effect	.014	-.006	.040

a. Eta-squared and Epsilon-squared are estimated based on the fixed-effect model.

b. Negative but less biased estimates are retained, not rounded to zero.

Robust Tests of Equality of Means

SocialMediaEngagement

	Statistic ^a	df1	df2	Sig.
Welch	3.580	3	87.161	.017
Brown-Forsythe	3.433	3	152.359	.019

a. Asymptotically F distributed.

Multiple Comparisons

Dependent Variable: SocialMediaEngagement
Tukey HSD

(I) Category	(J) Category	Mean		Sig.	95% Confidence Interval	
		Difference (I-J)	Std. Error		Lower Bound	Upper Bound
1.00	2.00	.29365	.24772	.637	-.3496	.9369
	3.00	.73016*	.25495	.024	.0682	1.3922
	4.00	.58109	.23774	.073	-.0362	1.1984
2.00	1.00	-.29365	.24772	.637	-.9369	.3496
	3.00	.43651	.25937	.336	-.2370	1.1100
	4.00	-.28744	.24248	.637	-.3422	.9171
3.00	1.00	-.73016*	.25495	.024	-1.3922	-.0682
	2.00	-.43651	.25937	.336	-1.1100	.2370
	4.00	-.14907	.24986	.933	-.7979	.4997
4.00	1.00	-.58109	.23774	.073	-1.1984	.0362
	2.00	-.28744	.24248	.637	-.9171	.3422
	3.00	.14907	.24986	.933	-.4997	.7979

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

Appendix 2: Questionnaire

Dear participant,

This survey is part of a dissertation at Católica-Lisbon School of Business and Economics regarding individuals' perceptions and interactions with brands.

The survey will take approximately 5 minutes to complete. Your answers will be kept anonymous and confidential. The data will only be reported on an aggregate basis.

Should you have any questions, please contact s-iracampos@ucp.pt.

By proceeding, you confirm that you are above 18 years old.

Thank you for your collaboration!

Page break

You will now be asked to answer questions about a beverage brand. Please read each question carefully and respond based on your **honest opinion** about this brand. There are **no right or wrong** answers. It is your personal perceptions that matter. Please consider the following brand when answering the questions:

- Coca-cola
- Pepsi
- Red Bull
- Monster Energy

- Sumol
- Fanta

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People often describe brands as if they have human-like personality traits. Even if you do not know this brand very well, you might still have an impression or feeling about it. Please indicate how strongly you agree or disagree with the following statements that describe this brand's personality. (Strongly disagree to strongly agree)

I consider this brand to be down-to-earth.

I consider this brand to be honest.

I consider this brand to be wholesome.

I consider this brand to be cheerful.

I consider this brand to be daring.

I consider this brand to be spirited.

I consider this brand to be imaginative.

I consider this brand to be up-to-date.

I consider this brand to be reliable.

I consider this brand to be intelligent.

I consider this brand to be successful.

I consider this brand to be upper class.

I consider this brand to be charming.

I consider this brand to be outdoorsy.

I consider this brand to be tough.

Page break

Please state how strongly you agree or disagree with the following statements about this brand. (Strongly disagree to strongly agree)

I read posts related to this brand on social media.

I follow this brand on social media.

I like posts related to this brand on social media.

I comment on posts related to this brand on social media.

I initiate posts related to this brand on social media.

I post content that shows this brand on social media.

Page break

Please state how strongly you agree or disagree with the following statements about this brand.
(Strongly disagree to strongly agree)

I consider myself to be loyal to this brand.

This brand would be my first choice.

I will not buy other brands if this brand is available.

I will buy this brand the next time I buy a drink.

I intend to keep purchasing this brand.

I am committed to this brand.

I would be willing to pay a higher price for this brand over other brands.

Page break

For attention checking purposes, please select number 3.

Page break

Please indicate your level of familiarity with this brand.

- Not familiar at all
- Slightly familiar
- Moderately familiar
- Very familiar
- Extremely familiar

On average, how much time do you spend daily on social media?

- Less than 1 hour
- 1-2 hours
- 2-3 hours
- 3-4 hours
- More than 4 hours

How often do you consume products from this brand?

- Never

- Once a month
- 2-3 times a month
- Once a week
- Several times a week

Page break

Please select your age.

- 18-24
- 25-34
- 35-44
- 45-54
- 55-64
- 65-74
- 75-84
- 85 or older

Please select your gender.

- Male
- Female
- Non-binary / third gender
- Prefer not to say

Please select your highest level of completed education.

- Less than high school
- High school
- Bachelor's degree
- Master's degree
- PhD or higher
- Prefer not to say

Page break

We thank you for your time spent taking this survey. Your response has been recorded.