

The Effect of Brand Design Elements on Brand Age Perceptions and Brand Evaluations

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ABSTRACT

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This thesis is the first to develop brand age (i.e., brand youthfulness and brand matureness) as a brand personality characteristic. It extends research on the effects of brand design elements to an underdeveloped domain by exploring how brand design elements (logo shape, type font, hue, and saturation) shape consumers' brand age perceptions. Findings demonstrate that round logo shapes and type fonts, and green hue increase perceived brand youthfulness, whereas angular logo shapes and type fonts, and brown hue enhance perceived brand matureness. This research further examines the role of brand-product category congruence and finds that congruence in terms of age perceptions leads to positive brand evaluations. From a managerial perspective, this research provides guidelines to help marketers modify brand designs for achieving desired brand age perceptions and subsequent consumer responses.

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1. Introduction

Imagine that you are looking for chocolates to buy as a gift for your five-year-old niece. In your brand choice, you would probably look for a brand with a younger image than one you would consider when buying chocolates for your mother or aunt.

When making purchase decisions, consumers tend to consider a brand's image that is often influenced by who the typical target user of the brand is. Such brand image considerations relate to consumers' perception of brand personality (Aaker, 1997). Brand personality is defined as "the set of human characteristics that consumers associate with a brand" (Aaker, 1997, p. 347), and includes characteristics such as gender, age, and class (Levy, 1959). Brand age is relevant for markets, because it is an effective means of brand differentiation (Vernadakis, 2000) and thus contributes to brand equity (Keller, 1993). Although research has examined a wide range of brand personality characteristics, such as brand competence, sophistication, excitement, ruggedness, and sincerity (Aaker, 1997), or brand gender (Grohmann, 2009), research on other characteristics, such as consumers' perceptions of brand age is still sparse.

This research focuses on brand age as a brand personality characteristic, defined here as the extent to which consumers perceive a brand as being youthful or mature. The goals of this research are (1) the development of the construct of brand age as a brand personality characteristic and its delineation from related constructs such as the chronological brand age and brand heritage, (2) the development of a measure of brand age as a brand personality characteristic, and (3) an investigation of the antecedents and consequences of consumers' brand age perceptions.

Specifically, consistent with findings that brand design elements, such as color, type font, or logo shape (Lieven et al., 2014), influence consumers' perception of brand personality characteristics (Lieven et al., 2014; Seimiene and Kamarauskaite, 2014), this research examines how these brand design elements shape consumers' perceptions of brand age. In order to demonstrate the theoretical and managerial importance of brand age, this research also examines the role of brand-product category congruence with regard to age perceptions on consumers' brand evaluations, and investigates whether more youthful (mature) brands are preferred in product categories that are oriented toward younger versus older consumers.

The remainder of this thesis is structured as follows: First, it develops the construct of brand age as a brand personality characteristic, as well as hypotheses regarding how design elements shape consumers' perceived brand age, and how brand age interacts with product category perceptions in influencing consumer responses to the brand. Study 1 develops measures of perceived brand age and tests its convergent and discriminant validity. Study 2 then tests the influence of logo shape, type font, color hue and saturation on perceived brand age. Study 3 is an experiment to examine whether and how brand age perceptions ultimately affect consumers' brand evaluations. This thesis concludes with a discussion of the theoretical and practical implications of the findings and directions for future research.

2. Conceptual background

2.1 Brand age as a brand personality characteristic

Brand age is first mentioned as a brand personality characteristic in Aaker's (1997) discussion of brand personality. Brand personality is defined as "the set of human characteristics that consumers associate with a brand" (Aaker, 1997, p. 347), and includes characteristics such as gender, age, and class (Levy, 1959). However, since there exists no universal definition of brand age in the marketing literature, the term brand age appears in different literature streams with inconsistent meanings and is often used interchangeably with the chronological age of a brand and brand heritage. Nonetheless, consistent with the argument that "... just as most people usually recognize whether something is addressed to them as a man or a woman, so are they sensitive to symbols of age" (Levy, 1959, p. 12), consumers' perceptions of brand age is likely based on a brand's marketing activities, malleable, and independent of the brand's chronological age or actual brand history.

In this article, brand age is defined as consumer perceptions of youthfulness or matureness of a brand. Brand age therefore "reflects an outcome of brand identity" (Huber et al., 2013, p. 208) and is conceptually distinct from a number of brand age-related constructs, such as a brand's chronological age and brand heritage. A brand's chronological age refers to the number of years that have passed since the brand's creation. This parallels the definition of chronological age as a demographic variable, defined as the number of years from birth (Hendricks and Hendricks, 1936). For instance, Amazon was established on July 5, 1994. Its chronological age in the year 2019 is therefore 25. In this article, brand age refers to consumers' age-related brand

associations or age characteristics of a brand that is independent of the brand's longevity (Barak, 1987).

Brand age is also distinct from brand heritage. Brand heritage is defined as “a dimension of a brand's identity found in its track record, longevity, core values, use of symbols and particularly in an organizational belief that its history is important” (Urde et al., 2007, p. 4). Both brand age and brand heritage arise from strategic decisions regarding brand positioning and are influenced by brand communication activities (Urde et al., 2007). Perceived brand age is—to some extent—relevant in heritage brands as heritage perceptions are accumulated over time (Stewart, 2002). Brand age is conceptually distinct from brand heritage in several ways, however. First, brand age is a brand personality characteristic and thus relates to the human aspects consumers imbue brands with. As such, brand age relates to and likely complements the five brand personality dimensions (i.e., sincerity, excitement, sophistication, ruggedness, and competence; Aaker, 1997). In contrast, brand heritage is a dimension of a brand identity that is captured by five elements (i.e., track record, longevity, core values, history important to identity and use of symbols; Urde et al., 2007), such that higher presence of these elements evokes greater brand heritage. Second, since brand heritage is nurtured over time, the chronological age of a brand is a vital component of building a heritage brand, while the formation of brand age as a brand personality characteristic does not necessarily require a long history. For example, a newly established brand can still appeal to older consumers and provide a sense of maturity through product design, marketing activities, and brand communications. Finally, heritage is part of a brand's identity with regard to its past, present, and future (Urde et al., 2007), whereas brand age consists of brand associations that consumers hold at the present moment and is independent of a brand's prior trajectory.

2.2 Antecedents of brand age perceptions

If brand age perceptions can be shaped by marketing activities, the use of brand design elements should play an important role in giving rise to such age-related associations. Brand design elements include brand name, logo shape, color and type font (Lieven et al., 2014). This article focuses on logo shape, color and type font and their impacts on consumers' brand age perceptions, as prior research has demonstrated that these brand design elements influence consumers' perceptions of brand personality (Batra et al., 1993) and help differentiate a brand

(Walsh et al., 2010). The predictions regarding the impact of logo shape, type font, and color are derived from documented effects on brand personality dimensions that are conceptually related to brand age. In addition, as consumers rely on physical cues applied to interpersonal judgment when developing brand personality characteristics—such as brand gender, for example (Lieven et al., 2014)—these predictions are also based on the relation of physical features and age perceptions in the human sphere.

Logo shape. Logo shape refers to a brand logo's graphic design (Henderson and Cote, 1998), which is an essential part of the brand's visual identity (Kohli, Suri and Thakor, 2002), and is cross-culturally consistent (Henderson et al., 2003). The marketing literature supports that logo design affects consumers' perceptions of brand personality (Grohmann 2008). For example, when a logo is highly constant, natural, elaborate, and coherent, the brand is perceived to be more exciting, whereas brand ruggedness is highly associated with constant, natural, elaborate, round and coherent logo shapes. Importantly, roundness significantly diminishes consumers' perception of brand ruggedness.

In the judgment of human age, preadolescents' body shape are an indicator of age-related changes and maturity (Eveleth, 1978), which affects adults' attention given to them (Alley, 1983). Rounder features are generally associated with lower age. Similarly, rounder head shapes in children are perceived as cuter by adults (Alley, 1981).

Taken together, these streams of research suggest that round logo designs are more likely to be associated with youthfulness (i.e., they relate negatively to perceived brand age).

H1: Logo shape impacts consumers' brand age perceptions, such that logo roundness is negatively related to perceived brand age.

Type font. Type font is also among the brand design elements that influence consumer responses (Batra et al., 1993). Childers and Jass (2002) found that type fonts convey meanings that are independent from the content of the words they represent, and that type fonts contribute to the formation of brand perceptions. Grohmann, Giese and Parkman (2012) further confirm that type fonts affect consumers' brand personality (i.e., excitement, sincerity, sophistication, competence and ruggedness) perceptions. To add to previous research that investigated a limited set of type fonts in terms of type font design characteristics (e.g., Henderson et al., 2004), we

adopt a broader perspective by associating type fonts with human physical characteristics. In line with Eveleth (1978) and Alley's (1981) findings that visual cues of body roundness are associated with cuteness and youth, a similar positive effect of type font roundness (i.e., negative effect of angularity) is expected in terms of consumers' brand age perceptions.

H2: Type font impacts consumers' brand age perception, such that type font roundness is negatively related to perceived brand age.

Color. In the context of brand design research, color is often conceptualized in terms of hue (e.g., green, red, blue), saturation, and value (Labrecque and Milne, 2012). Saturation is "the amount of pigment in a color" (Labrecque and Milne, 2012, p.717). Value refers to "the amount of lightness or darkness relative to a scale that ranges from black (low) to white (high)" (Labrecque and Milne, 2012, p.712). Color has been linked to a brands' visual identity (Klink, 2003) and brand recognition (Abril et al., 2009). Labrecque and Milne (2012) examined the influence of brand logo color on consumers' brand personality perceptions (Aaker, 1997), brand preference and purchase intention. They found that brown hue or high saturation and low value increases perceived brand ruggedness, whereas red hue or high saturation leads to excitement.

Extending these findings to perceived brand age as a brand personality characteristic, it is likely that logo color influences brand age perceptions as well. For brand age perceptions, green hue is expected to increase perceived youthfulness because it represents nature, spring, renewal, health, and youth, whereas gray or brown is associated with boredom, coolness, and decay (Akçay et al., 2011).

H3: Color hue impacts consumers' brand age perception, such that the green or red hue enhances perceived brand youthfulness, whereas the grey or brown hue enhances perceived brand matureness.

In addition, findings of psychological studies highlight the role of skin coloration in influencing individuals' perceived age, such that lighter or whiter skin color is perceived to be associated with increased youthfulness, health, and attractiveness (Frost, 1988; Fink et al., 2006). Applied

to associations brand logos may evoke, this suggests that lower levels of saturation are likely associated with younger brand age.

H4: Saturation of color impacts consumers' brand age perception, such that the use of high value enhances perceived brand youthfulness, whereas low value enhances perceived brand matureness.

Taken together, hypotheses 1 to 4 suggest that brand age perceptions are influenced by brand design elements, such as logo shape, type font, and color hue and saturation.

2.3 The moderating role of brand age-product category congruence

In considering the impact of consumers' brand age perceptions on brand-related responses, it is likely that the influence of brand age perceptions is contingent upon the product category context. More specifically, brand age may result in positive evaluations in product categories that are associated with congruent age perceptions arising from typical user associations.

Previous literature supports positive effects of brand-product category congruence on consumer responses towards brands. Research on categorization suggests that people naturally connect a certain entity to an existing category in their mind, and if the new entity matches an old one, such category membership ultimately enhances preference (Solomon et al., 1999; Tajfel et al., 1971). A growing body of literature on congruity effects supports an important role of perceived congruity in influencing consumers' decision making. For instance, when a sponsorship event is in line with consumer's perceived self-image, this congruity significantly enhances brand loyalty (Sirgy et al., 2008). The types of congruity that influence consumer attitude is not limited to self-object congruence. For instance, Lee and Shen (2009) found that advertising information becomes more persuasive and easier to remember when brands are congruent (vs. incongruent) in joint advertisements. Similar results emerged in banner and website advertising, such that the brand benefits most from consumers' attitude when the two forms of advertisement appear in congruence (Newman et al., 2004). Lieven and colleagues (2015) investigated brand and product category gender congruence and further confirmed the finding that brand-product category congruence leads to positive brand attitude. Based on these findings, it is plausible that congruence between brand age and perceived age of the typical

product category user enhances brand evaluations, whereas incongruence is likely to influence brand evaluations negatively.

H5: Congruence between brand age and product category associations positively relates to brand evaluations.

3. Study 1

Study 1 develops a multi-item scale to measure brand age. In addition, it demonstrates the scale's convergent and discriminant validity with regard to the five dimensions of brand personality (i.e., excitement, ruggedness, sophistication, competence, sincerity; Aaker, 1997), brand chronological age, and brand heritage perceptions.

3.1 Participants, stimuli, and measures

To explore the relation between Aaker's (1997) five dimensions of brand personality (i.e., sincerity, competence, excitement, sophistication, and ruggedness), brand chronological age and brand heritage, an online questionnaire was administered to 150 participants (32 percent female, median age = 33, compensation = \$1.0) recruited from the Amazon Mechanical Turk (hereinafter referred to as MTurk) online panel.

Six brand logos were selected as stimuli for this study in order to elicit variance with regard to brand age perceptions (see appendix A). Three of the brands targeted a younger age segment (Little Freddie, Teenie Weenie, Disney), while the other three were more adult-oriented (Anchor, Levi's, Coach).

After random assignment to one of the six logo conditions, participants were presented with the logo without additional brand information. They then answered a series of questions regarding the brand presented by the logo. Brand age perceptions were measured on three seven-point bipolar adjective scales developed for the purposes of this research (1 = young/youthful/childlike, 7 = old /mature/elderly). Participants then evaluated brand personality on Aaker's (1997) 42-item brand personality scale, and completed the multidimensional perceived brand heritage scale (Pecot et al., 2017; see Appendix B). They indicated their perception of the brand's chronological age ("If you had to guess when this brand was founded,

you'd say it was founded in: ___ (enter year)”), and completed a measure of brand familiarity (1= not at all familiar, 7= very familiar). Finally, participants provided demographic information regarding their age, gender, education, employment status, annual income, language and ethnicity. All items were measured on seven-point scales.

3.2 Results

The brand age items loaded on one factor (average variance extracted = 87.29%), with factor loadings exceeding .90. Cronbach's alpha was high ($\alpha = .93$). The remaining measures loaded on their respective factors (see Table 1) and had high levels of reliability (sincerity $\alpha = .91$; sophistication $\alpha = .88$; excitement $\alpha = .94$; competence $\alpha = .91$; ruggedness $\alpha = .93$; brand heritage $\alpha = .96$). A confirmatory factor analysis also supported that a brand's chronological age forms a different factor from perceived brand age (factor loadings of .93, .94, and .90 on the brand age factor, and -.37 on perceived chronological age factor).

Table 1. Study 1– Exploratory factor analysis (oblique rotation)

<i>Item</i>	<i>Factor</i>			
	<i>Brand_age</i>	<i>Brand heritage</i>	<i>Excitement</i>	<i>Ruggedness</i>
Brand_age 1	.879	.147	-.206	.132
Brand_age 2	.891	.064	-.306	.132
Brand_age 3	.895	.105	-.125	.120
Brand heritage 1	.008	.780	—	—
Brand heritage 2	.074	.767	—	—
Brand heritage 3	.072	.844	—	—
Brand heritage 4	.031	.824	—	—
Brand heritage 5	.060	.832	—	—
Brand heritage 6	.069	.869	—	—
Brand heritage 7	.084	.879	—	—
Brand heritage 8	.148	.841	—	—
Brand heritage 9	-.067	.578	—	—
Brand heritage 10	.005	.550	—	—
Excitement 1	-.044	—	.717	—
Excitement 2	-.039	—	.848	—
Excitement 3	-.138	—	.848	—
Excitement 4	-.139	—	.773	—
Excitement 5	-.107	—	.753	—
Excitement 6	-.476	—	.706	—
Excitement 7	-.228	—	.817	—
Excitement 8	-.039	—	.837	—
Excitement 9	-.270	—	.783	—
Excitement 10	.044	—	.605	—
Excitement 11	-.011	—	.605	—
Ruggedness 1	-.008	—	—	.828
Ruggedness 2	.136	—	—	.853
Ruggedness 3	.072	—	—	.815
Ruggedness 4	.136	—	—	.871
Ruggedness 5	.104	—	—	.874

Study 1 also examined the convergent and discriminant validity of the brand age scale. As shown in Table 2, a correlation analysis shows a significant, but moderate negative correlation between brand age and excitement, such that more mature brands seem less exciting. A significant, moderate, positive correlation emerged for brand age and ruggedness, such that greater brand age is associated with greater ruggedness perceptions. In other words, compared to more youthful brands, more mature brands appear to be less delicate. Demographic information was not significantly associated with brand age perception ($ps > .10$).

Table 2. Study 1 – Correlations between perceived brand age, brand heritage, brand chronological age, and brand personality dimensions

	<i>Brand age</i>	<i>Brand heritage</i>	<i>Chronological age</i>	<i>Sincerity</i>	<i>Excitement</i>	<i>Competence</i>	<i>Sophistication</i>	<i>Ruggedness</i>
Brand age	—	.113	-.243**	-.146	-.336**	.061	-.115	.218**
Brand heritage		—	-.313**	.595**	.524**	.790**	.587**	.485**
Chronological age			—	.031	.189*	-.176*	.086	-.140
Sincerity				—	.728**	.721**	.537**	.478**
Excitement					—	.653**	.762**	.327**
Competence						—	.720**	.510**
Sophistication							—	.337**
Ruggedness								—

* $p < 0.05$; ** $p < 0.01$

Study 1 also provided preliminary evidence of known-group validity of the brand age scale. A one-way ANOVA with brand logo group (youthful, mature) as independent factor and perceived brand age serving as the dependent variable indicates that the youthful brand logos were perceived as significantly more youthful ($M_{\text{youthful brands}} = 2.99$, $SD = 1.71$; $M_{\text{mature brands}} = 4.51$, $SD = 1.70$; $F(1,149) = 30.21$, $p < .001$). When the individual brand logo served as the independent factor and perceived brand age as the dependent variable, significant differences between brand age perceptions emerged ($F(5, 144) = 6.99$, $p < .001$). A Tukey's HSD post-hoc test revealed two homogeneous subsets that differed significantly in brand age perceptions: The brand age perception of Little Freddie and Teenie Weenie was significantly lower than that of Anchor, Levi's and Coach ($p < .05$). Brand age means and standard deviations are shown in Table 3.

Table 3. Study 1 – Brand age means and standard deviations by brand

Brand	Mean	SD
Little Freddie	2.67	1.89
Teenie Weenie	2.89	1.69
Disney	3.37	1.53
Anchor	4.24	1.83
Levi's	4.37	1.48
Coach	4.93	1.76

3.3 Discussion

Study 1 reports the development of a unidimensional, reliable, three-item bipolar-adjective scale of perceived brand age (anchored 1 = young/youthful/childlike, 7 = old/mature/elderly). Study 1 also demonstrates the scale's discriminant validity with regard to brand heritage, and the brand personality characteristics of excitement, sincerity, sophistication, competence, and ruggedness. In support of the scale's convergent validity, a moderate negative correlation emerged between perceived brand age and excitement, whereas a moderate positive correlation emerged for brand age and ruggedness.

4. Study 2

Study 2 investigates the effects of logo shape (H1), type font (H2), color hue (H3) and color saturation (H4) on consumers' brand age perceptions.

4.1 Design and stimuli

This study employs a 2 (logo shape: round vs. angular) × 2 (type font: round vs. angular) × 4 (hue: green, red, brown, grey) × 2 (saturation: low vs. high) between-participants design. To preclude confounds due to brand familiarity, this study employed a fictitious brand name (Fexury) and logo designs adapted from previous research (Henderson and Cote, 1998). The logo designs used in this study are shown in appendix A.

4.2 Participants and measures

Participants were 800 adults (328 female, mean age = 34, compensation = \$0.5) recruited from the MTurk online panel. Participants were randomly assigned to one of the 32 logo conditions and answered a series of questions regarding the brand.

Measures included the perceived brand age scale ($\alpha = .89$), brand evaluation ($\alpha = .93$), brand attitude, brand appeal ($\alpha = .94$; Rompay et al., 2009), logo evaluation ($\alpha = .96$; Rompay et al., 2009), trial intention ($\alpha = .94$; Paharia et al., 2011), purchasing frequency, product involvement ($\alpha = .88$; Bloch, 1981), perception of the typical brand user (1 = young/youthful/childlike, 7 = old/mature/elderly $\alpha = .87$), the 42-item brand personality scale (sincerity $\alpha = .82$; sophistication $\alpha = .92$; excitement $\alpha = .95$; competence $\alpha = .94$; ruggedness $\alpha = .92$; Aaker, 1997). In addition, the questionnaire included manipulation check questions for logo shape, type font, and color, asking about roundness/angularity of the logo shape and type font (1 = round/smooth, 7 = angular/sharp; $r_{\text{logo shape}} = .94$; $r_{\text{type font}} = .88$), and age perceptions with regard to the logo, type font, and color (1 = young/youthful/childlike, 7 = old/mature/elderly; $\alpha_{\text{logo shape}} = .91$; $\alpha_{\text{type font}} = .86$; $\alpha_{\text{color}} = .92$). All items were measured on seven-point scales and are listed in appendix B. Participants also provided demographic information.

4.3 Results

Results reveal that brand evaluation, brand appeal, trial intention and brand logo evaluation, product involvement and perceived user age were significantly correlated (see Table 4). A confirmatory factor analysis further suggested that brand evaluation, brand appeal, trial intention, and brand logo evaluation loaded on a single factor (variance extracted 87.62%), as did product involvement and purchase frequency (variance extracted 97.36%), while perceived brand age and user age constituted separate factors.

Table 4. Study 2 – Correlations

	<i>Brand age</i>	<i>Logo evaluation</i>	<i>Brand evaluation</i>	<i>Brand appeal</i>	<i>Trial intension</i>	<i>Product involvement</i>	<i>User age</i>
Brand age	—	.059	.082*	.086*	.082*	.132**	.329**
Logo evaluation		—	.846**	.915**	.889**	.487**	.254**
Brand evaluation			—	.892**	.849**	.423**	.216**
Brand appeal				—	.910**	.474**	.269**
Trial intension					—	.482**	.281**
Product involvement						—	.187**
User age							—

* $p < 0.05$; ** $p < 0.01$

Results of the manipulation check questions indicated that the experimental manipulations were successful. The round logo was perceived as rounder and younger (logo shape roundness: $M_{\text{round}} = 3.49$, $SD = 1.84$; $M_{\text{angular}} = 5.56$, $SD = 1.22$; $t(798) = -18.76$, $p < .001$; logo age perception: $M_{\text{round}} = 3.81$, $SD = 1.64$; $M_{\text{angular}} = 4.40$, $SD = 1.53$; $t(798) = -5.26$, $p < .001$). The round type font was perceived as rounder and younger (type font shape: $M_{\text{round}} = 3.59$, $SD = 1.82$; $M_{\text{angular}} = 4.84$, $SD = 1.49$; $t(798) = -10.64$, $p < .001$; type font age perception: $M_{\text{round}} = 3.48$, $SD = 1.73$; $M_{\text{angular}} = 4.74$, $SD = 1.29$; $t(798) = -11.70$, $p < .001$). The higher saturation hue was perceived as being more saturated (saturation: $M_{\text{high}} = 4.34$, $SD = 1.57$; $M_{\text{low}} = 4.80$, $SD = 1.40$; $t(798) = -4.42$, $p < .001$) and the color age perceptions were aligned with theoretical predictions ($M_{\text{green}} = 3.94$, $SD = 1.50$; $M_{\text{red}} = 4.44$, $SD = 1.33$; $M_{\text{brown}} = 4.85$, $SD = 1.60$; $M_{\text{grey}} = 5.01$, $SD = 1.34$; $p < .001$).

The hypothesis tests were based on an ANOVA, with logo shape, type font, color hue and saturation, and their interactions serving as independent factors, and brand age perceptions serving as the dependent variables. Table 5 provides descriptive statistics for brand age perceptions across conditions.

Table 5. Study 2 – Descriptive statistics

Logo shape	Type font	Saturation	Color	Mean	Std. Deviation
Round	Round	High	Green	2.8400	1.08917
			Red	3.3951	1.60671
			Brown	3.8533	1.39470
			Grey	3.5897	1.44317
Round	Round	Low	Green	4.0267	1.46856
			Red	3.3462	1.64244
			Brown	3.4167	1.81845
			Grey	3.5600	1.95249
Round	Angular	High	Green	3.9167	1.36290
			Red	4.2319	1.30048
			Brown	4.0800	1.38203
			Grey	4.2000	1.50000
Round	Angular	Low	Green	4.1235	1.73242
			Red	4.0556	1.38196
			Brown	4.9487	1.29852
			Grey	4.5833	1.35363
Angular	Round	High	Green	3.5000	1.55417
			Red	4.0278	1.70228
			Brown	4.6173	1.57899
			Grey	3.4321	1.45242
Angular	Round	Low	Green	3.7143	1.49544
			Red	3.8636	1.59582
			Brown	4.8194	1.36194
			Grey	4.2121	1.40500
Agular	Agular	High	Green	4.0769	1.71868
			Red	4.7733	1.60358
			Brown	4.7879	1.30342
			Grey	4.1975	1.47706
Agular	Agular	Low	Green	4.4444	1.53121
			Red	4.8000	1.58406
			Brown	4.7564	1.41910
			Grey	4.1061	1.62124

Table 6 summarizes the univariate ANOVA results. Consistent with H1 and H2, the main effects of logo shape and type font shape were significant. Round logo shapes ($M = 3.93$, $SD = 1.59$)

resulted in significantly lower brand age perceptions than angular logo shapes ($M = 4.23$, $SD = 1.60$; $F(1,400) = 6.71$, $p < .001$). The round (vs. angular) type font significantly reduced brand age perceptions ($M_{\text{round}} = 3.78$, $SD = 1.65$; $M_{\text{angular}} = 4.37$, $SD = 1.50$; $F(1,400) = 29.16$, $p < .01$). In partial support of H3, color hue significantly influenced brand age perceptions ($M_{\text{green}} = 3.89$, $SD = 1.62$; $M_{\text{red}} = 4.05$, $SD = 1.65$; $M_{\text{brown}} = 4.39$, $SD = 1.55$; $M_{\text{grey}} = 3.98$, $SD = 1.56$; $F(1,400) = 3.86$, $p < .01$), but post-hoc tests reveal that the significant effect of hue is driven by the green and brown hues ($p < .05$). Contrary to the predictions of H4, the effect of saturation was not significant ($M_{\text{high}} = 4.04$, $SD = 1.56$; $M_{\text{low}} = 4.11$, $SD = 1.64$; $F(1,400) = 3.60$, $p = .06$). The interaction effects were not significant ($ps > .05$).

In a series of additional exploratory ANOVAs, the measures of brand evaluation, appeal and trial intentions served as the dependent variables and the design elements as independent variables, no significant main or interaction effects of logo shape, type font, color hue, and saturation emerged ($ps > .05$), with a few exceptions: a significant type font main effect emerged for the brand evaluation criterion ($M_{\text{round}} = 4.45$, $SD = 1.68$; $M_{\text{angular}} = 4.69$, $SD = 1.46$; $F(1,400) = 4.03$, $p < .05$), and there was a consistent logo shape \times hue \times saturation interaction on brand evaluations ($F(1,400) = 3.30$, $p < .02$), brand appeal ($F(1,400) = 4.49$, $p < .01$), and trial intentions ($F(1,400) = 4.52$, $p < .01$). Although this effect is not the focus of the present analysis, it reflects a consistently more positive evaluation of the brown logo at low saturation levels when the logo design was angular. Demographics do not significantly influence the dependent variables ($ps > .1$).

Table 6. Study 2 – ANOVA Results

Dependent Variable: Brand age	F-Value	p-Value
Model	3.027	.000
Independent Variables		
Logoshape	12.049	.007
Typefont	33.008	.000
Saturation	3.597	.603
Color	5.231	.010
Logoshape \times typefont	1.882	.572
Logoshape \times saturation	.143	.636
Logoshape \times color	2.228	.147

Typefont × saturation	.008	.262
Typefont × color	.433	.654
Saturation × color	1.277	.538
Logoshape × typefont × saturation	.638	.133
Logoshape × typefont × color	1.048	.204
Logoshape × saturation × color	.338	.836
Typefont × saturation × color	.925	.219
Logoshape × typefont × saturation × color	2.243	.404

4.4 Discussion

Study 2 supported H1 and H2. Round (vs. angular) logo shapes or type fonts decreased brand age perceptions. Color hue also influenced brand age perceptions, such that a green logo hue decreased brand age perceptions, whereas a brown hue resulted in perceptions of greater brand maturity. This partially supports H3. Consumers' brand age perceptions were not significantly affected by logo color saturation, however, and H4 was not supported. The results regarding brand evaluation, appeal, and trial intentions suggest that the effects of logo design elements on brand age perceptions did not result in similar patterns of effects with regard to consumers' responses to the brand. This suggests that any effect of brand age on consumers' brand evaluations are likely moderated by other factors. Study 3 therefore turns to an investigation of the moderating role of product category associations.

5. Study 3

Study 3 examines the moderating role of product category association in the relation between brand age perceptions and consumer responses to the brand. More specifically, it examines to what extent congruence between brand age and product category associations affects brand evaluations (H5). In this study, congruence is experimentally manipulated by pairing a youthful (mature) brand design with a youthful (mature) product category, whereas incongruence is induced by pairing a youthful (mature) brand design with a mature (youthful) product category.

5.1 Design and stimuli

Study 3 used a 2 (brand age: youthful vs. mature) \times 2 (product category age associations: child-oriented vs. adult-oriented) between-participants design. The experimental manipulation of brand age perceptions was based on the results of study 2. The two logos (i.e., youthful and mature) used to experimentally manipulate brand age perceptions consisted of a colored brand logo shape accompanied by the fictitious brand name Fexury represented by a round or angular type font. The youthful brand logo design was a combination of round logo shape, round type font, and green hue. The mature brand logo design was a combination of angular logo shape, angular type font, and brown hue. Since color saturation did not significantly affect brand age perceptions in study 2, it was not included in the experimental manipulation of brand age in this study. The experimental stimuli are shown in appendix A.

To experimentally manipulate product category age associations, this study changed the product category the brand logo was ascribed to. Hot chocolate represented a product category with younger product user associations, whereas instant coffee was selected to represent a product category with more mature brand user associations.

5.2 Participants and measures

For this study, 120 participants (37.5 percent female, mean age=35, compensation = \$0.5) were recruited from the MTurk online panel. Participants were randomly assigned to one of the conditions. They read the following instructions: “You will evaluate a new brand of hot chocolate instant coffee. Please consider the brand carefully, as we will ask you a few questions about it later. There are no right or wrong answers, we are simply interested in your opinion.” They were then presented with one of the four brand logos. Next, they answered a series of questions concerning the brand. Measures were identical to those used in study 2, but also included purchase intention ($\alpha = .95$; Dodds et al., 1991), willingness to pay (“Please indicate the price that you would be willing to pay for a can of 500g of this brand of hot chocolate/ instant coffee: _____ (in US dollars)” with a limited entry ranging from \$1 to \$15; Homburg et al., 2005), product category perception (1 = young/youthful/childlike, 7 = old/mature/elderly; $\alpha = .92$), and logo appropriateness for the category (1 = not at all appropriate/bad fit/not at all logical; 7 = very appropriate/good fit/very logical; $\alpha = .94$). In addition, the questionnaire included manipulation check questions for logo shape, type font, and color, asking about roundness/angularity of the logo shape and type font (1 = round/smooth, 7

=angular/sharp; $r_{\text{logo shape}} = .86$; $r_{\text{type font}} = .91$), and age perceptions with regard to the logo, type font, and color (1 = young/youthful/childlike, 7 = old/mature/elderly; $\alpha_{\text{logo shape}} = .95$; $\alpha_{\text{type font}} = .94$; $\alpha_{\text{color}} = .91$). All items were measured on seven-point scales and are listed in appendix B. Participants also provided demographic information.

5.3 Results

A factor and reliability analysis confirmed that all multi-item scales loaded on their respective factors and were reliable (all Cronbach's alpha > .80; see reliabilities reported in appendix B).

Manipulation checks indicate that the selection of the stimuli was successful. The round logo was perceived as rounder and more youthful (logo shape roundness: $M_{\text{round}} = 2.82$, $SD = 1.76$; $M_{\text{angular}} = 5.97$, $SD = .95$; $t(118) = -12.23$, $p < .001$; perceived logo shape age: $M_{\text{round}} = 3.38$, $SD = 1.73$; $M_{\text{angular}} = 4.93$, $SD = 1.48$; $t(118) = -5.28$, $p < .001$). The round type font was perceived as rounder and more youthful (type font roundness: $M_{\text{round}} = 3.33$, $SD = 1.92$; $M_{\text{angular}} = 5.02$, $SD = 1.57$; $t(118) = -5.23$, $p < .001$; type font age perceptions: $M_{\text{round}} = 2.99$, $SD = 1.67$; $M_{\text{angular}} = 4.69$, $SD = 1.33$; $t(118) = -6.17$, $p < .001$). The green logo hue was perceived as more youthful ($M_{\text{green}} = 3.49$, $SD = 1.46$; $M_{\text{brown}} = 5.41$, $SD = 1.43$; $t(118) = -7.31$, $p < .001$). The typical consumer of hot chocolate (i.e., the product category with more youthful associations) was perceived to be younger (user age perceptions: $M_{\text{chocolate}} = 3.86$, $SD = 1.48$; $M_{\text{coffee}} = 4.65$, $SD = 1.64$; $t(118) = -2.75$, $p < .05$), as was the product category per se (product category age perceptions: $M_{\text{chocolate}} = 3.89$, $SD = 1.48$; $M_{\text{coffee}} = 4.78$, $SD = 1.43$; $t(118) = -3.37$, $p < .01$). Logos were perceived equally appropriate across conditions ($p > .10$).

Table 7 shows that brand evaluation, purchase intentions, willingness to pay, product involvement, purchasing frequency, and logo appropriateness were significantly correlated. In addition, product category age and product category typical consumer perceptions were also correlated. A confirmatory factor analysis shows that brand evaluation, purchase intentions, and willingness to pay loaded on a single factor accounting for 93.67% of the variance. So did product involvement and purchasing frequency (variance extracted 98.36%), product category and typical user age (variance extracted 90.57%).

Table 7 Study 3 – Correlations

	<i>Brand age</i>	<i>Brand evaluation</i>	<i>PI</i>	<i>Willing to pay</i>	<i>Product involvement</i>	<i>Purchasing frequency</i>	<i>Product category</i>	<i>Typical user</i>	<i>Logo appropriate</i>
Brand age	—	-.126	-.146	-.008	-.042	-.018	.279**	.402**	-.196*
Brand evaluation		—	.880**	.551**	.317**	.428**	.099	.071	.760**
PI			—	.577**	.370**	.378**	.142	.114	.826**
Willing to pay				—	.260**	.404**	-.023	.048	.491**
Product involvement					—	.745**	-.006	-.027	.421**
Purchasing frequency						—	-.019	-.007	.403**
Product category							—	.687**	.132
Typical user								—	.055
Logo appropriate									—

* $p < 0.05$; ** $p < 0.01$

Results of an ANOVA with brand age and product category as independent factors and brand evaluation serving as dependent variable did not yield significant main effects of brand age and product category ($ps > .49$), but a significant interaction ($F(1, 116) = 20.18, p < .001$). A more youthful brand evoked more positive brand evaluations when it was associated with a more youthful product category ($M_{\text{cocoa}} = 5.35, SD = 1.01; M_{\text{instant coffee}} = 4.04, SD = 1.51$), whereas a more mature brand elicited more positive brand evaluations when it was associated with a more mature product category ($M_{\text{cocoa}} = 3.93, SD = 1.82; M_{\text{instant coffee}} = 5.09, SD = 1.63$).

The results for purchase intentions and willingness to pay mirrored this pattern of results: For purchase intentions, there were no significant main effects of brand age and product category ($ps > .30$), but a significant interaction ($F(1, 116) = 14.73, p < .001$). A more youthful brand elicited greater purchase intentions when it was associated with a more youthful product category ($M_{\text{cocoa}} = 4.71, SD = 1.70; M_{\text{instant coffee}} = 3.85, SD = 1.74$), whereas a more mature brand elicited greater purchase intentions when it was associated with a more mature product category ($M_{\text{cocoa}} = 3.44, SD = 1.65; M_{\text{instant coffee}} = 4.94, SD = 1.60$).

For willingness to pay, there were no significant main effects of brand age and product category ($ps > .35$), but a significant interaction ($F(1, 116) = 9.63, p < .01$). A more youthful brand enhanced willingness to pay when it was associated with a more youthful product category ($M_{\text{cocoa}} = 9.65, SD = 4.34; M_{\text{instant coffee}} = 7.35, SD = 4.76$), whereas a more mature brand increased willingness to pay when it was associated with a more mature product category ($M_{\text{cocoa}} = 6.58, SD = 3.80; M_{\text{instant coffee}} = 9.00, SD = 3.63$). Demographics do not affect participants' evaluations ($ps > .10$). These results strongly support the brand age – product category congruence effect predicted by H5.

5.4 Discussion

Study 3 considered the influence of brand age perceptions on consumers' responses to the brand. Results suggest that brand age perceptions benefit brand-related outcomes such as brand evaluations, purchase intentions, and willingness to pay when they are congruent with product category associations. A youthful brand in a product category that is associated with younger user imagery or more youthful product category perceptions enhances brand evaluations, purchase intentions, and willingness to pay. A brand conveying an older brand age, on the other hand, evokes more positive responses in a product category with more mature user imagery or older product category age perceptions. These findings support H5 regarding the moderating role of product category associations in the relation between brand age perceptions and consumer responses to the brand.

6. General Discussion

This research defines perceived brand age as a brand personality characteristic and develops a multi-item measure of brand age perceptions. This research demonstrates the measures' convergent and discriminant validity with regard to related constructs of brand personality, brand chronological age, and brand heritage. It also provides evidence of known-group validity. Across three studies, the brand age measure is shown to be unidimensional and reliable. This research also shows how brand design elements (logo shape, type font shape, and logo hue) influence consumers' brand age perceptions, and indicates that brand age influences consumers' brand evaluations if applied in product categories that evoke similar age associations.

6.1 Theoretical contributions

The current research contributes to theory in three ways: First, since brand age perceptions are grounded in the context of brand personality, this research adds to the consideration and measurement of brand personality characteristics. This research shows that brand age is distinct from the five brand personality dimensions (i.e., sincerity, excitement, sophistication, ruggedness and competence) proposed by Aaker (1997). This study also suggests that brand age—conceptualized as the degree of youthfulness or maturity a brand evokes—is distinct from brand chronological age. Second, with respect to design elements, this study is among the first to

empirically show that brand design elements shape consumers' brand age perceptions. This research highlights the importance of considering logo shapes, type font shapes, and logo hue in creating a desired brand age profile for a brand. In addition, the current research also contributes to the literature on congruence effects in marketing by demonstrating that the congruence between brand logo evoked brand age perception and consumers' product category associations have a positive impact on consumer responses to the brand, including brand evaluations, purchase intentions and willingness to pay.

6.2 Managerial implications

This research also provides several managerial insights. First, it provides a valid and reliable measurement scale to assess brand age perceptions consumers may hold with regard to a brand. In addition, this measure can help track consumer brand age perceptions over time and may highlight the need to revise visual brand cues. Findings suggest that design elements can be used as a competitive tool to shape consumers' responses towards certain brands and win market share. For instance, a brand competing in a youth-oriented product category might highlight its brand youthfulness by adding roundness to the logo shape as well as type font or using youthful colors such as green. Similarly, brand competing in product categories that are more adult-oriented would benefit from conveying a more mature image and could take advantage of angular logo shape, type font and mature colors, like brown. Given the wide variety of logo shapes, type fonts, and hues, marketers have many options available to them in order to use beneficial logo design while differentiating themselves from competitors. In either case, this article emphasizes that activating brand age-product category congruence promotes brand evaluations.

6.3 Limitations and directions for future research

In order to eliminate the influence of brand familiarity, this research used fictitious logos adapted from previous research as well as a fictitious brand name in examining the antecedents and consequences of consumers' brand age perceptions. Although this increased the internal validity of the research, its generalizability is potentially limited. An interesting finding in this research is that participants in both congruent and incongruent conditions in study 3 reported that they would be willing to pay over \$7 for a 500g container of hot chocolate or instant coffee on

average, while the actual price of this kind of products does not generally exceed \$6. This could point to a potential distortion of self-reported brand responses in the study or could be an artifact of considering product without price information or isolated from a competitive context. Future research could therefore replicate this study by using real brands, or consider inclusion of field studies that allow observation of real purchasing behavior.

Another limitation might be associated with the operationalization of color adopted in this research. In examining the role of color in driving consumers' perception of brand age, this research focused on colors with strong age associations, such as green and grey, based on existing findings rooted in the social-psychological domain. However, it is possible that color roles appear to be different when applied to brand designs. This warrants future explorations on colors' relation to brand age perceptions. Consistent with the every-day phenomenon that children's products tend to have multiple colors (for instance, colorful LEGO pieces), whereas more single-colored items are directed toward adults, with regard to brand age perception, we also expect future studies on the role of color diversity.

Finally, the number of product categories considered in this research were limited. Future research could thus extend the current findings by exploring the role of product category congruence with regard to the effects of brand age perceptions across multiple product categories that could also differ to a greater extent in terms of product involvement, risk, or price point. The scale of consumers' brand age perceptions developed in this research will benefit such future inquiries.

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Appendix A
Stimuli

Study 1								
Study 2	 <p>Fexury Fexury Fexury Fexury Fexury Fexury Fexury Fexury</p>							
	 <p>Fexury Fexury Fexury Fexury Fexury Fexury Fexury Fexury</p>							
Study 2	 <p>Fexury Fexury Fexury Fexury Fexury Fexury Fexury Fexury</p>							
	 <p>Fexury Fexury Fexury Fexury Fexury Fexury Fexury Fexury</p>							
Study 3	 <p>Fexury Hot Chocolate 500g</p>		 <p>Fexury Instant Coffee 500g</p>		 <p>Fexury Instant Coffee 500g</p>		 <p>Fexury Hot Chocolate 500g</p>	

Appendix B

Measures

Construct	Items
Brand heritage (Pecot et al.,2017)	<p>This is a brand which will never go out of fashion</p> <p>This is a brand that is very continuous</p> <p>This is a timeless brand</p> <p>This is a brand that won't disappear tomorrow</p> <p>This is a brand exuding a sense of tradition</p> <p>This is a brand that reinforces and builds on long-held traditions</p> <p>This is a brand with roots</p> <p>This is a brand that has a strong link to the past</p> <p>This is a brand that knows how to reinvent itself</p> <p>This is a brand that renews itself</p>
Brand appeal (Rompay et al.,2019)	<p>This brand appeals to me.</p> <p>This is a fine brand.</p> <p>I feel positive about this brand.</p> <p>This is an attractive brand.</p>
Logo evaluation (Rompay et al.,2019)	<p>This logo appeals to me.</p> <p>This is a fine logo.</p> <p>I feel positive about this logo.</p> <p>This is an attractive logo.</p>
Trial intention (Paharia et al.,2011)	<p>Based on the brand logo, would you like to try this brand?</p> <p>Would you buy this brand if you happened to see it in a store?</p> <p>Would you actively seek out this brand in a store in order to purchase it?</p>
Product involvement (Bloch et al.,1981)	<p>I enjoy consuming chocolate bars.</p> <p>I'm ready to talk to others about chocolate bars.</p> <p>I'm interested in eating chocolate bars.</p> <p>I can express myself through chocolate bars.</p> <p>I'm attached to chocolate bars.</p> <p>I'm interested in chocolate bars.</p>
Purchase intention (Dodds et al., 1991)	<p>If I were going to purchase a can of hot chocolate [instant coffee], I would consider buying this brand.</p> <p>If I were shopping for a can of hot chocolate [instant coffee], the likelihood I would purchase this brand is high.</p> <p>My willingness to buy this brand would be high if I were shopping for a can of hot chocolate [instant coffee].</p> <p>The probability I would consider buying this brand is high.</p>

Typical consumer	From 1 = young/youthful/childlike to 7 = old/mature/elderly
Product category	From 1 = young/youthful/childlike to 7 = old/mature/elderly
Brand age perception	From 1 = young/youthful/childlike to 7 = old/mature/elderly
Brand evaluation	From 1 = dislike/unfavorable/negative/low quality to 7 = like/favorable/positive/high quality
Logo appropriateness	From 1 = not at all appropriate/bad fit/not at all logical to 7 = very appropriate/good fit/very logical