

ESSAYS ON  
LONELY CONSUMERS AND SOCIAL GAZE

By

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LONELY CONSUMERS AND SOCIAL GAZE

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**Abstract:** This dissertation includes two essays. The first essay examines how two dimensions of loneliness influence brand relationships. Lonely individuals tend to use consumption to compensate for their lacking relationships. Drawing on the literature on loneliness, compensatory consumption, and brand relationship, this research suggests that lonely individuals are different in ways of connecting with brands. Emotionally lonely individuals who feel the inadequate closeness in their relationships are more loyal to brands, whereas socially lonely individuals who have insufficient connections tend to prefer having a large brand assortment. Across five studies, I develop a new scale of emotional and social loneliness and using measurement and multiple experiments, I provide supporting evidence. The second essay investigates how consumers react to the different gaze directions of a model in an advertisement. It was proposed that people would be more willing to click an advertisement that features a model's direct gaze than averted gaze because of an arousal effect. However, three studies failed to support the hypotheses. The second essay suggests that the effect of a model's gaze direction may have a nuanced effect on consumers and depend on contextual factors such as a viewer's personality.

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## CHAPTER I

### ESSAY 1. LONELY CONSUMER'S BRAND RELATIONSHIPS

#### 1.1. INTRODUCTION

##### 1.1.1. Current Issues

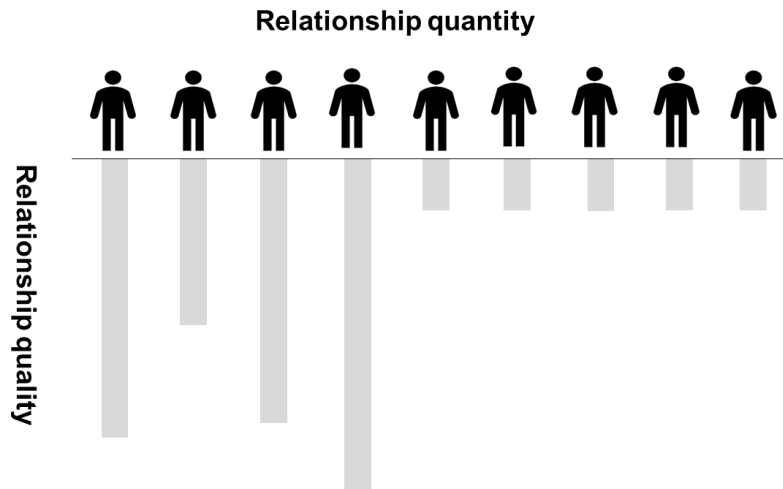
Loneliness is a growing problem. In 2020, 61% of Americans reported feeling lonely, which is a 7% increase from 2018 (Cigna, 2020; Murthy, 2017). Although loneliness mainly has been a concern for psychologists and policymakers, it also matters for marketers given that loneliness affects consumption (Pieters, 2013). Previous research has found that lonely consumers are more likely to go shopping (Kim, Kang, & Kim, 2005) and spend more time watching home shopping television (Harden, 1996). Feeling lonely increases materialism (Pieters 2013).

An important question for marketers is how these trends in loneliness influence brand relationships. If loneliness fosters materialism, are lonely consumers more loyal to a single brand? Or are they disloyal to any given brand by simply purchasing as many brands as possible? Previous research found mixed results. Some research suggests that consumers who feel lonely tend to be more loyal. For instance, lonely individuals who thought no one wanted to talk with them showed a higher level of loyalty toward their favorite brand (Tsai, 2014), and lonely individuals due to divorces or broken relationships with partners strengthened brand love and loyalty (Lastovicka & Sirianni, 2011; MacInnis & Folkes, 2017). However, other studies suggest the opposite. When thinking about a brand frequently used in their lives, lonely individuals indicated lower levels of loyalty, brand attitude, and self-brand connection (Long,

Yoon, & Friedman, 2015), and socially excluded individuals switched their brand choices more often, suggesting lower brand loyalty (Su, Jiang, Chen, & Nathan Dewall, 2016).

These inconsistent findings might be attributed to the conceptualization of loneliness. Most consumer research used a unidimensional conceptualization of loneliness by defining it as an overall unpleasant feeling of inadequate social relationships (Long et al., 2015; Mittal & Silvera, 2018; Pieters, 2013; Tsai, 2014; Wang, Zhu, & Shiv, 2012). However, evidence suggests that loneliness is multidimensional (de Jong-Gierveld & Kamphuls, 1985; DiTommaso & Spinner, 1997; Weiss, 1973). Every individual has a set of relationships that vary in quantity and quality (See Figure A1) and inadequacy on either dimension can lead to different dimensions of loneliness—*social loneliness* is due to an insufficient quantity of relationships and *emotional loneliness* is due to inadequate quality of relationships. Existing literature has largely overlooked the consequences of this multi-dimensional loneliness on consumption.

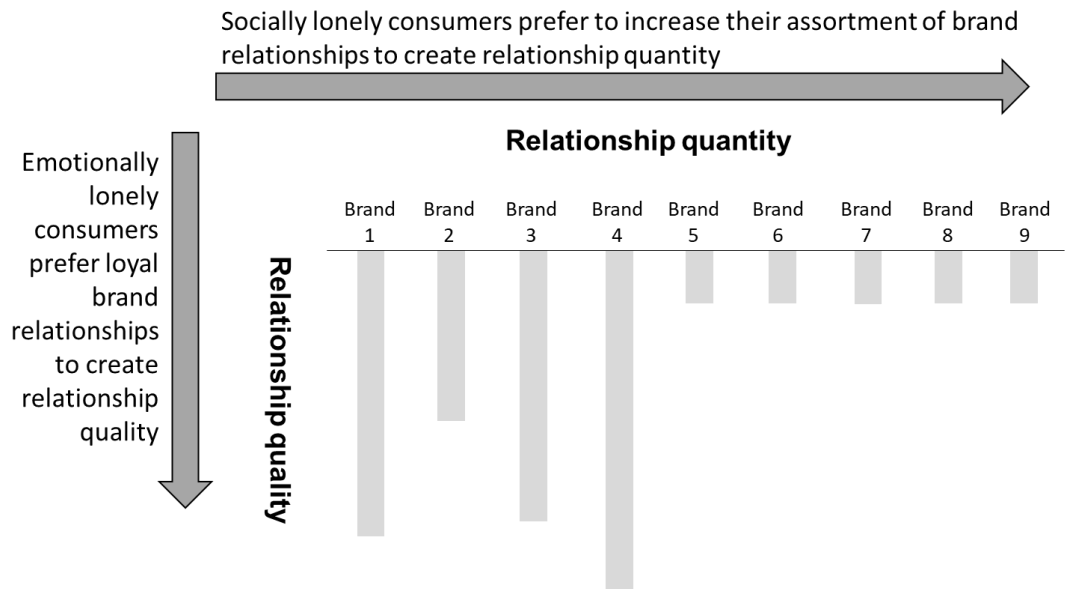
Figure A1. Multidimensional Human Relationships



### 1.1.2. Purpose of the Study

This research examines how consumers' relationships with brands are affected by two dimensions of loneliness. Drawing on the literature on social psychology, brand relationship, and compensatory consumption, I suggest that emotional and social loneliness have divergent influences on brand loyalty and assortment. Specifically, consumers feeling emotional loneliness substitute with stronger brand loyalty, strengthening their emotional connections to a few select brands. On the other hand, consumers feeling social loneliness substitute by preferring relationships with more brands, consequently lowering their loyalty to any single brand (See Figure A2). Across five studies, I found the supporting evidence.

Figure A2. Proposed Effect of Multidimensional Loneliness on Multidimensional Brand Relationships



### 1.1.3. Contribution

This research provides several theoretical, managerial, and policy contributions. First, to the best of my knowledge, this is the first research to demonstrate the unique consequences of two-dimensional loneliness on brand relationships. Through multiple studies, this research demonstrates that emotional loneliness increases brand loyalty whereas social loneliness increases preference for brand assortment. Second, this research suggests a way to reconcile contradictions in the literature. Existing literature inconsistently suggests increasing and decreasing effects of loneliness on brand loyalty (Long et al., 2015; Mittal & Silvera, 2018; Tsai, 2014). The current research suggests that both are possible, depending on the loneliness dimension. Last, for marketing managers, this research suggests that brand strategy can be designed to help lonely individuals. For emotionally lonely consumers, brand managers may use strategies emphasizing an intimate customer relationship, such as customized brand programs (Wind & Rangaswamy, 2001), personalized care (Ball, Coelho, & Vilares, 2006), and brand loyalty programs (Khamitov, Wang, & Thomson, 2019). For socially lonely consumers, providing multi-brand experiences are recommended, such as brand alliance (Washburn, Till, & Priluck, 2004), brand bundling (Simonin & Ruth, 1995), and co-branding strategy (Washburn, Till, & Priluck, 2000). Lastly, the present research implies that policymakers working to reduce loneliness should not treat loneliness as a singular phenomenon, but rather as a multidimensional phenomenon requiring multiple solutions.

### 1.1.4. Organization of the Dissertation

The rest of the paper is organized as follows. I first review the literature on loneliness, multidimensional brand relationships, and consumption substitutes to develop a theoretical framework. Based on it, I hypothesize the distinct effects of two-dimensions of loneliness on

brand loyalty and assortment. After this, I present five studies to test the hypothesis. First of all, in study 1, I develop a scale of emotional and social loneliness. Study 2 presents initial evidence showing that emotional and social loneliness is linked to brand loyalty and assortment differently. Studies 3 and 4 provide further evidence showing the effect of loneliness by using a brand choice task and an advertisement. Study 5 suggests a boundary condition about a brand role. Finally, the theoretical and practical implications of the current research will be discussed to conclude the paper.

## 1.2. LITERATURE REVIEW

### 1.2.1. Conceptualization of Loneliness

The need to belong is a fundamental human motivation (Baumeister & Leary, 1995). A failure to meet a social desire leads to loneliness. Previous research on loneliness has generally agreed on two characteristics of the loneliness experience. First, loneliness is a negative emotion (Russell, Cutrona, Rose, & Yurko, 1984). Being lonely is such a painful experience that it is linked to many negative affective states such as sadness, depression, and harmful health issues (Cacioppo et al., 2002). Second, loneliness is a subjective feeling. Some people can live solitary lives without feeling lonely, whereas others can feel lonely in a crowd (Hawkley & Cacioppo, 2010). Loneliness is a matter of subjective perception of one's social relationship, not objective social isolation.

Although there is agreement about the basic characteristics of loneliness, there are different perspectives on the dimensionality of loneliness. In a unidimensional conceptualization, loneliness refers to an overall unpleasant feeling of social isolation that arises from inadequate social relationships (Peplau & Perlman, 1982). This view does not differentiate relationship types and considers all lonely individuals to have similar experiences (Russell et al., 1984; Sinha & Wang, 2013). For example, the experience of a lonely freshman is regarded as the same experience of a lonely widow who recently lost a spouse (Russell, Peplau, & Cutrona, 1980). Most consumer studies on loneliness have used the unidimensional conceptualization by measuring it with the UCLA loneliness scales (but see Sinha & Wang 2013; Rippé, Smith, & Dubinsky 2018; Table A1).

Table A1. Summary of Previous Studies on Loneliness

Authors	Loneliness Type	Manipulation/Measure of Loneliness/Exclusion	Dependent Variable
Harden (1996)	Unidimensional	Measurement (UCLA Scale)	TV home shopping
Kim, Kang, & Kim (2005)	Unidimensional	Measurement (UCLA Scale)	Mall shopping intention
Orth, Cornwell, Ohlhoff, & Naber (2017)	Unidimensional	Measurement (UCLA Scale)	Anthropomorphism
Pieters (2013)	Unidimensional	Measurement (UCLA Scale)	Materialism
Long, Yoon, & Friedman (2015)	Unidimensional	Manipulation (Cyberball game with strangers; Subliminal word manipulation; False feedback on loneliness)	Brand closeness; Brand attitude; Brand loyalty
Lastovicka & Sirianni (2011)	Unidimensional	Measurement (UCLA Scale)	Possession love (passion /commitment)
Mittal & Silvera (2017)	Unidimensional	Manipulation (False feedback on loneliness)	Material attachment
Tsai (2014)	Unidimensional	Manipulation (Non-acceptance scenario)	Brand attachment
Yan & Sengupta (2020)	Unidimensional	Measurement (UCLA Scale)	Loneliness perception of the number
Sinha & Wang (2013)	Multidimensional (emotional vs. social loneliness)	Measurement (Social/Emotional loneliness Scale)	Impulsive shopping intention
Rippé, Smith, & Dubinsky (2018)	Multidimensional	Measure (Social/Emotional loneliness Scale)	In-store salesperson interaction

On the other hand, on the view of a multidimensional conceptualization, loneliness experiences can vary by which relationship dimension is inadequate (De Jong-Gierveld, 1998; DiTommaso & Spinner, 1997; DiTommaso, Brannen, & Best, 2004; Sinha & Wang, 2013; Weiss, 1973). The meaning of “inadequate social relationships” implies two dimensions: an inadequate quality of relationships (e.g., lack of intimacy with others) and an inadequate quantity of relationships (e.g., not enough number of friends; Russell et al. 1984). Even though the desired levels of intimacy and social size vary by individuals, people need both satisfactory quality and quantity in their relationships (Weiss, 1973). Emotional loneliness is a type of loneliness due to inadequate emotional closeness. For example, some individuals may maintain many superficial relationships with little intimacy. Social media, with its emphasis on multiple weak connections, seems to contribute to emotional loneliness (Ryan & Xenos, 2011). Individuals who lost close relationships due to divorce, breakup, or death are likely to experience emotional loneliness. On the other hand, social loneliness is a type of loneliness due to an inadequate number of social connections. Even with close relationships, individuals can still experience loneliness in terms of the inadequate quantity of relationships, such as lack of friendships. For example, individuals who have recently moved may experience social loneliness due to a disrupted social network (Weiss, 1973). The inadequate affiliations in friendships and workplace relationships can promote the feeling of social loneliness. Global events like the Covid-19 pandemic likely impact social loneliness by reducing time spent at social encounters but increasing time spent at home, often with family members.

Although emotional and social loneliness is not necessarily orthogonal, they are distinct concepts with different characteristics and compensations (Sinha & Wang, 2013). According to Weiss (1974), emotionally and socially lonely individuals are different in their subjective experiences and motivations. For example, emotional loneliness is closely linked to feelings of insecurity and anxiety. Individuals experiencing emotional loneliness seek an attached and



secured connection. For them, relationship quality is more important than quantity. As an example, for a widow who feels emotional loneliness because of a loss of a close one, finding a close relationship through remarrying could reduce loneliness rather than engaging in diverse social activities with friends (Russell et al., 1984; Weiss, 1973). In contrast, social loneliness leads to feelings of boredom and marginality. Socially lonely individuals desire to find social network or group he or she can participate in and share their interests. For those experiencing social loneliness, making new friends is an effective remedy than making existing friendships deeper. In sum, emotional loneliness is driven to a quality relationship while social loneliness is driven to quantitative relationships. Importantly, the quality and quantity dimensions can be found in brand relationships as well.

### 1.2.2. Multi-dimensional Brand Relationship

Just like human relationships, consumers' relationships with brands are multidimensional, varying in quality and quantity (Fournier, 1998, 2008). The quality dimension corresponds most closely with brand loyalty (Fournier, 1998). Brand loyalty refers to a deeply held commitment toward a brand (Oliver, 1999). Despite situational influences (e.g., price increase, no stock on a shelf) and marketing efforts that can lead to switching behavior (e.g., reward, a discount of competitors' brands), loyalty makes consumers remain in the relationship consistently (Chaudhuri & Holbrook, 2001; Oliver, 1999). Although early literature on brand loyalty focuses on repeat purchase, brand loyalty is much more than just repeat purchase (Jacoby & Kyner, 1973). Loyal consumers have a biased preference toward a brand. They not only are cognitively positive on the brand evaluations but also are emotionally connected to the brand (Oliver, 1999; Watson, Beck, Henderson, & Palmatier, 2015). Brand loyalty has been related to factors of relationship strength (Khamitov et al., 2019) such as trust (Chaudhuri & Holbrook, 2001), love (Carroll & Ahuvia, 2006), self-connection (van der Westhuizen, 2018), attachment

(Thomson, MacInnis, & Whan Park, 2005), commitment (Amine, 1998), which are important predictors of relationship quality (Hassebrauck & Fehr, 2002).

Brand relationships also involve a quantity dimension. The desire for multiple brand relationships appears in a number of marketing concepts, foremost of which is a brand assortment, the number of unique brands preferred by consumers (Seggev, 1970). The brand assortment is particularly relevant to retailers. Although recent research has highlighted the drawbacks of multiple options (Iyengar & Lepper, 2000), consumers consistently favor retailers with larger assortments (Mazursky & Jacoby, 1986) and tend to purchase multiple brands (Trijp, Hoyer, & Inman, 1996). Although brand assortment resembles variety-seeking, they have notable conceptual distinctions. Variety seeking is often associated with a desire to avoid satiation or boredom with the most recently consumed options (McAlister & Pessemier 1982; Menon & Kahn, 1995). Variety seeking thus depends on the sequence of consumption (Su et al., 2016). In contrast, brand assortment depends on the total number of brands, irrespective of their sequence.

In sum, like human relationships, brand relationships involve both qualitative and quantitative dimensions. In this dissertation, I suggest that consumers' interpersonal relationships will be reflected in brand relationships.

### 1.2.3. Consumption Substitutes

Consumers often use consumption to resolve their inadequacies (Kim & Rucker, 2012; Mandel, Rucker, Levav, & Galinsky et al. 2017). Compensatory consumption can arise in diverse situations. For example, individuals who feel unintelligent prefer an intelligence-related product like fountain pens (Gao, Wheeler, & Shiv, 2009). Also, individuals who feel powerless are willing to pay substantially more for a high-status product (Rucker & Galinsky 2008). Likewise, a situation threatening one's sense of freedom (e.g., confinement in narrow aisles) increases one's variety-seeking to compensate for the lacking freedom (Levav & Zhu, 2009).

Consumption is also used to compensate for inadequate relationships. Previous literature has shown that lonely and/or socially excluded individuals tend to consider non-human products as like humans and use them to compensate for inadequate social relationships. For example, lack of social connections with other humans strengthens the relationships with products to restore the sense of connectedness (Chen, Wan, & Levy, 2017; Epley, Akalis, Waytz, & Cacioppo, 2008; Mourey, Olson, & Yoon, 2017). Specifically, lonely people anthropomorphized non-human agents (e.g., a clock, a battery charger, an air purifier, pillow, and pet) by thinking the objects are thoughtful, considerate, and sympathetic (Epley et al., 2008). When brands visually show human faces (e.g., smiling faces) on the packages, lonely individuals are more likely to prefer the brands (Orth, Cornwell, Ohlhoff, & Naber, 2017). Lastovicka & Sirianni (2011) suggested that a failure to achieve satisfactory interpersonal relationships led individuals to feel a stronger attachment toward personal possessions. Experiencing a loss of a romantic relationship increased the desire to love their possession (e.g., personal computer, bicycle, and car) to fulfill the need for social affiliation. Similarly, other research has shown that lonely individuals spend more money to be connected to products (Pieters, 2013). Elderly and lonely individuals who typically have fewer social connections are more concerned with the relationships with brands (Jahn, Gaus, & Kiessling, 2012; Pieters, 2013). Overall, the literature demonstrates that consumption can be a social substitute for individuals who lack social relationships. Individuals experiencing loneliness naturally seek surrogates to resolve it (Baumeister & Leary, 1995; Cacioppo & Patrick, 2008).

It is noteworthy that in most cases, an inadequate relationship motivates people to reconnect with other people. Nevertheless, many people are prone to turn to relationships with a non-human object because it avoids the risk of social rejection (Pieters, 2013; Tauber, 1972). Many consumers who experience loneliness as a result of shyness or social anxiety feel more comfortable relating to inanimate objects like brands than they do to other people (Gardner,

Pickett, & Knowles, 2005; Pieters, 2013; Tauber, 1972). Unlike people, Nike shoes don't judge you.

#### 1.2.4. Research Hypothesis

The current research proposes that lonely individuals will use brand relationships to compensate for their lacking relationships. Although brand relationships do not necessarily have the same richness as human relationships, they are remarkably similar (Aggarwal, 2004; Fournier, 1998). Consumers think about brands in human-like terms: friends, lovers, spouses (Fournier 1998), and ascribe human-like traits (e.g., sincerity, excitement, and competence) to brands (Aaker, 1997). Thus, the brand's role as a social partner will affect how lonely individuals connect with the brands.

The present research suggests that two dimensions of loneliness will have different influences on brand loyalty and brand assortment. Loyal brand relationships provide a way to compensate for relational quality, whereas increasing the assortment of brand relationships provides a way to compensate for relational quantity. Given that the quality and quantity dimensions are not completely compensatory, and deficiency on either loneliness dimensions often requires fulfilling the corresponding dimension (Cutrona & Russell, 1990), two hypotheses are developed below. Emotionally lonely individuals will prefer loyal brand relationships by seeking deeper emotional connections with brands. In contrast, socially lonely individuals prefer multiple brand connections. Taken together, hypotheses are:

**H1.** Individuals experiencing high social loneliness will prefer larger brand assortments than individuals experiencing low social loneliness (H1a); however, individuals

experiencing high emotional loneliness will not prefer a large brand assortment than individuals experiencing low emotional loneliness (H1b).

**H2.** Individuals experiencing high emotional loneliness will show stronger brand loyalty than individuals experiencing low emotional loneliness (H2a); however, individuals experiencing high social loneliness will not show stronger brand loyalty than individuals experiencing low social loneliness (H2b).

Furthermore, these predictions imply that consumers hold a lay belief that brands can substitute their relationships with people. This creates a boundary condition. Consumers who do not believe this are unlikely to use brand relationships to compensate for their loneliness types. Thus, I propose:

**H3.** The effect of the loneliness dimension on brand loyalty and preference for a large brand assortment will be weakened when individuals are less likely to believe that brands act as social partners.

### 1.2.5. Study Overview

Next, five studies will be presented. First of all, study 1 develops a scale of emotional and social loneliness. Study 2 provides initial evidence that emotional and social loneliness are differently linked to the proneness of brand loyalty and brand assortment. Study 3 shows that in a water brand purchase, emotional and social loneliness affects the assortment size of chosen brands and loyalty levels. Study 4 demonstrates emotional and social loneliness affect brand purchase intentions depending on which ad appeals (i.e., brand loyalty and brand assortment) are communicated in an advertisement. Last, study 5 extends the findings by demonstrating the moderating effects of a belief in brand roles.

Table A2. Study Overview

	Purpose	Data collection	Design	Stimuli
Study 1	Develop emotional and social loneliness scales	OSU Behavioral lab (n=322)	-	-
Study 2	To test the relationship among emotional and social loneliness and brand relationships (H1 & H2)	OSU Behavioral lab (n=288)	-	Brand loyalty tendency and preference on the brand assortment
Study 3	To test the effect of emotional and social loneliness on brand loyalty and assortment (H1 & H2)	Cloud Research (n=430)	2 (Loneliness dimensions: emotional vs. social) x 2 (Loneliness levels: high vs. low) between-subject	Water brand
Study 4	To test the effect of emotional and social loneliness on purchase intention (H1 & H2)	Cloud Research (n=430)	3 (Loneliness: emotional vs. social vs. control) x 2(ad appeal: loyalty vs. assortment) between-subject	Online socks subscription
Study 5	To test a boundary condition (H3)	Cloud Research (n= 606)	2 (Loneliness: emotional vs. social) x 2 (ad appeal: loyalty vs assortment) x 2 (belief of brand role: baseline vs. non-brand substitute) between-subject	Online socks subscription

## Study 1. Scale Development of Multidimensional Loneliness

The purpose of study 1 is to develop a scale of emotional and social loneliness. Although previous research provided scales to measure two dimensions of loneliness, they have limitations. Ditommaso, Brannen, & Best (2004) scale focused on specific relationship types such as family and romantic relationships (emotional loneliness), and friendships (social loneliness) which do not necessarily correspond with loneliness dimensions. Gierveld & Tilburg (2006) created a 6 item emotional and social loneliness scale, however, unlike the emotional loneliness items using negatively valenced wordings (e.g., I miss having a really close friend), all the social loneliness items used positively valenced wordings (e.g., There are plenty of people I can rely on when I have problems). The tendency to agree or disagree to the reverse items often creates multi-factor structures (Swain, Weathers, & Niedrich, 2008), thus potentially confounded with multi-dimensions of loneliness. Therefore, this study aims to develop a scale of emotional and social loneliness that focuses on one's inadequate quality and quantity in relationships.

In study 1, I test that the new scale shows a two-factor structure with high inter-correlations. Nomological validity is also tested by investigating the relationships with theoretically relevant concepts. Previous research suggested that emotional loneliness would be negatively related to attachment and unidimensional closeness while social loneliness would be negatively related to social integration and social activity (Russell et al., 1984; Weiss, 1973). However, both measures should be similarly correlated with unidimensional loneliness (UCLA), depression, and negative emotions.

### Method

*Item generation.* An initial pool of items was generated, aligned with conceptualizations of emotional and social loneliness. The items of emotional loneliness measure how much one

wishes for a close relationship that they do not have, whereas the items of social loneliness measure how much one wishes for more social networks. 12-items were created; six items for each dimension (See table A3).

*Data collection* A total of three hundred thirty-six undergraduate students were recruited from Oklahoma State University in exchange for course credit. Fourteen participants were excluded due to their duplicate participation and non-response, leaving a total of three hundred twenty-two samples in the data (61.2% female,  $M_{age} = 20.80$ ).

Participants responded to 12-items of emotional and social loneliness on a nine-point scale (1 = strongly disagree, 9 = strongly agree). Then, they were asked to indicate multiple items of nomological correlates including attachment (4 items; Russell & Cutrona, 1984), unidimensional closeness (11 items; Dibble, Levin, & Park, 2011), social integration (4 items; Russell & Cutrona, 1984), socializing activity (Schorr, 2018), UCLA loneliness (10 items; Pieters, 2013), negative emotion (10 items; Watson, Clark, & Tellegen, 1988), and depression (7 items; Burroughs & Rindfleisch, 2002). See Appendix A.



Table A3. An initial pool of items

		Min	Max	Mean	SD	Skewness		Kurtosis	
						Statistics	SE	Statistics	SE
EL1	I wish I had someone to talk to about personal topics.	1	9	5.93	2.659	-.467	.136	-1.004	.271
EL2	I wish I had deeper relationships in my life.	1	9	5.84	2.547	-.362	.136	-.971	.271
EL3	I wish I had a closer connection in my life.	1	9	5.66	2.535	-.320	.136	-.950	.271
EL4	I wish I had a more intimate bond in my life.	1	9	5.76	2.669	-.416	.136	-1.035	.271
EL5	The bonds that I have with others are too weak.	1	9	3.56	2.226	.669	.136	-.404	.271
EL6	I lack intimacy with another person.	1	9	3.88	2.731	.490	.136	-1.146	.271
SL1	I wish I had more people to socialize with.	1	9	5.02	2.432	.045	.136	-.930	.271
SL2	I wish I had more friends.	1	9	4.82	2.428	.193	.136	-.913	.271
SL3	I wish I had a bigger social circle.	1	9	4.76	2.414	.100	.136	-.995	.271
SL4	I wish my social circle included more people.	1	9	4.97	2.434	.053	.136	-.972	.271
SL5	The number of people that I know and hang out with is too small.	1	9	3.87	2.274	.480	.136	-.679	.271
SL6	I have no friends to mingle with.	1	9	2.28	1.883	1.468	.136	1.327	.271

## Results

*Scale purification* Principal components analysis (PCA) was conducted to assess the factor structure and eliminate ill-fitting items. Initially, items generated three factors (Table A4). Thus, items with low loadings on their hypothesized factors (<.60) were removed, leaving a total of 8-items of emotional (4 items) and social loneliness (4 items) showing a clear two structures (Table A5).

Table A4. Exploratory Factor Analysis of Initial Items

Items		Factor loadings <sup>b</sup>		
		1	2	3
EL1	I wish I had someone to talk to about personal topics.	<b>.848</b>	.268	.130
EL2	I wish I had deeper relationships in my life.	<b>.875</b>	.288	.136
EL3	I wish I had a closer connection in my life.	<b>.877</b>	.303	.183
EL4	I wish I had a more intimate bond in my life.	<b>.871</b>	.248	.199
EL5	The bonds that I have with others are too weak. <sup>a</sup>	.252	.354	<b>.717</b>
EL6	I lack intimacy with another person. <sup>a</sup>	.444	.056	<b>.678</b>
SL1	I wish I had more people to socialize with.	.385	<b>.802</b>	.202
SL2	I wish I had more friends.	.344	<b>.848</b>	.225
SL3	I wish I had a bigger social circle.	.245	<b>.886</b>	.210
SL4	I wish my social circle included more people.	.247	<b>.834</b>	.196
SL5	The number of people that I know and hang out with is too small. <sup>a</sup>	.100	.598	<b>.668</b>
SL6	I have no friends to mingle with. <sup>a</sup>	.019	.163	<b>.836</b>
Eigenvalues		6.896	1.644	1.196
% of variance		57.46	43.70	9.96
% of the total variance		81.131		

<sup>a</sup> Indicates a dropped item <sup>b</sup> Extraction Method: Principal Component Analysis with Varimax Rotation  
*Note:* Factor loadings over .60 appear in bold.

Table A5. Exploratory Factor Analysis of Final Items

Items		Factor loadings <sup>a</sup>	
		Emotional loneliness ( $\alpha = .946$ ) <sup>b</sup>	Social loneliness ( $\alpha = .943$ ) <sup>b</sup>
EL1	I wish I had someone to talk to about personal topics.	<b>.860</b>	.275
EL2	I wish I had deeper relationships in my life.	<b>.888</b>	.298
EL3	I wish I had a closer connection in my life.	<b>.891</b>	.328
EL4	I wish I had a more intimate bond in my life.	<b>.881</b>	.281
SL1	I wish I had more people to socialize with.	.386	<b>.830</b>
SL2	I wish I had more friends.	.351	<b>.877</b>
SL3	I wish I had a bigger social circle.	.244	<b>.914</b>
SL4	I wish my social circle included more people.	.238	<b>.869</b>
Eigenvalues		5.541	1.343
% of variance		69.25	16.79
% of the total variance		86.048	

<sup>a</sup> Extraction Method: Principal Component Analysis with Varimax Rotation

<sup>b</sup> Cronbach's Alpha

*Note:* Factor loadings over .60 appear in bold.

*Scale validation* A confirmatory Factor Analysis (CFA) was conducted in Mplus 8.4 by adding additional data (n = 587). The CFA was run on the 8-items with two factors of emotional and social loneliness. Standardized factor loadings ranged from .853 to .941 (Table A7).

Model fit indexes showed adequate fit with CFI = .984, NNFI = .976, RMSEA = .089, and SRMR = .021 (Table A6). Although the RMSEA is suggested to be smaller than .10 for adequate fit, this index shows poor fit for models with few degrees of freedom (Lynch, Netemeyer, Spiller, & Zammit, 2010). Additionally, an alternative model with the same items loaded on a single factor was tested. But for the alternative model, model fit indexes showed poor fit with CFI = .718, NNFI = .605, RMSEA = .357, SRMR = .128, suggesting superiority of two-dimensional loneliness (Table A6).

Table A6. Model Fit of Emotional and Social Loneliness

	$\chi^2$	df	CFI (>.90)	NNFI (>.95)	RMSEA (<.08)	SRMR (<.08)
Two-dimensional loneliness model	106.449	19	.984	.976	.089	.021
Alternative model (No dimension)	1516.734	20	.718	.605	.357	.128

Regarding the convergent validity, scales of each dimension showed high internal consistency, given that the Cronbach's alphas for EL ( $\alpha = .947$ ) and SL ( $\alpha = .955$ ) exceed the .90 threshold (Nunnally, 1978). Composite reliabilities (CR) for EL (CR = .948) and SL (CR = .955) are greater than the .70 threshold, and AVEs ( $EL_{AVE} = .819$ ;  $SL_{AVE} = .843$ ) are greater than the .50 threshold (Hair et al., 2009). Importantly, AVEs of EL and SL are respectively greater than the squared correlation between EL and SL ( $r^2 = .476$ ; Fornell & Larcker, 1981), confirming the discriminant validity of two dimensions of loneliness (Table A7).

Table A7. Confirmatory Factor Analysis of Final Items

		Standardized factor loading	AVE	Composite reliability (CR)	Squared Correlation of emotional and social loneliness
Emotional loneliness	I wish I had someone to talk to about personal topics.	.853	.819	.948	.476
	I wish I had deeper relationships in my life.	.919			
	I wish I had a closer connection in my life.	.938			
	I wish I had a more intimate bond in my life.	.909			
Social loneliness	I wish I had more people to socialize with.	.911	.843	.955	
	I wish I had more friends.	.941			
	I wish I had a bigger social circle.	.933			
	I wish my social circle included more people.	.887			

Constructs require nomological validity, which encompasses theoretically-driven relationships (Mochon & Schwartz, 2019). As predicted, Table A8 shows that each dimension of loneliness has the expected correlates with outside constructs. Unidimensional closeness was more strongly correlated with emotional loneliness ( $r = -.170$ ) than social loneliness ( $r = -.075$ ;  $z = -1.94$ ,  $p < .05$ ). Attachment also showed a higher correlations with emotional loneliness ( $r = -.387$ ) than social loneliness ( $r = -.311$ ;  $z = -1.67$ ,  $p < .05$ ). In contrast, social activity was more strongly correlated with social loneliness ( $r = -.197$ ) than with emotional loneliness ( $r = -.101$ ;  $z = -1.97$ ,  $p < .05$ ). Social integration showed a marginally stronger correlation with social loneliness ( $r = -.301$ ) than emotional loneliness ( $r = -.230$ ;  $z = 1.50$ ,  $p = .066$ ). But, as predicted, both loneliness dimensions were equivalently correlated with UCLA loneliness, depression, and negative emotion ( $p = n.s$ ). See the Table A8.

Table A8. Nomological validity correlates of emotional and social loneliness scales

Construct	Prediction (More strongly correlated with)	Emotional loneliness	Social loneliness	Correlation comparison		
				Z-value	p-value	Result
Unidimensional Closeness	Emotional loneliness	-.170	-.075	-1.94	0.026	Support
Attachment		-.387	-.311	-1.67	0.048	Support
Social integration	Social loneliness	-.230	-.301	1.50	0.066	Marginally Support
Social activity		-.101	-.197	1.97	0.024	Support
UCLA loneliness	Both loneliness	.412	.452	-0.92	0.179	Support
Depression		.361	.363	-0.04	0.482	Support
Negative emotion		.251	.220	0.65	0.258	Support

## Discussion

Study 1 provides a reliable and valid 8-item emotional and social loneliness scale. The scale showed (1) two-dimensions, (2) a high internal consistency for each dimension, (3) distinct validity of two loneliness dimensions, and (4) nomological validity with theoretically relevant concepts. Next, we examine the relationship between these dimensions and brand preferences.

## Study 2: Loneliness Dimensions and Brand Relationships

Study 2 aims to provide initial evidence that two-dimensions of loneliness influence brand loyalty and assortment. In study 2, participants indicated their general brand loyalty, assortment, and emotional and social loneliness. I expected that emotional loneliness will be positively associated with brand loyalty but not brand assortment. On the other hand, social loneliness will be positively associated with brand assortment, but not brand loyalty.

### Material and methods

*Participants and procedure.* A total of two hundred eighty-eight participants (61.5% females, age range = 18–55,  $M_{\text{age}} = 21.73$ ) at OSU participated in the study in exchange for extra credit. Participants were told that the study is about a consumer's shopping habits and emotional well-being. They were asked multiple questions about brand shopping and loneliness. First of all, they answered three-items of brand loyalty proneness (e.g., I prefer one brand of most products I buy;  $a = .83$ ) adopted from Ailawadi, Neslin, & Gedenk (2001) and self-generated six-items of brand assortment preference (e.g., I prefer to be a customer of numerous brands; I'm interested in connecting with several brands;  $a = .91$ ) on the nine-point scales (1 = strongly disagree; 9 = strongly agree). Then, they answered the emotional loneliness ( $a = .91$ ) and social loneliness items ( $a = .95$ ) developed in study 1. After measuring demographics and debriefing, the study was completed. See Appendix 2 for the methodological details.

### Results

*Measurement model analysis.* A confirmatory factor analysis (CFA) was conducted in Mplus 8.4 to examine the psychometric property among constructs. Results revealed an excellent fit to the data ( $\chi^2 (113) = 300.98, p < 0.01$ ; CFI = 0.95; TLI = 0.94; SRMR = 0.06; RMSEA =



0.08). All the factor loadings were statistically significant, ranging from .65 to .94 (See Table A9 & A10). In terms of construct reliability and convergent validity, the composite reliability (CR) of all constructs was above the .70 threshold and the average variance extracted (AVE) was above the .50 threshold (Fornell & Larcker, 1981). Also, the square root of the AVE for each construct exceeded all paired correlations among constructs (Fornell & Larcker, 1981). Thus, the results confirmed that all items are reliable and valid indicators to measure the constructs.

Table A9. Descriptive Statistics and Correlation Matrix.

Construct	M	SD	AVE	CR	1	2	3	4
1. Emotional loneliness	5.05	2.31	.74	.92	(.91)			
2. Social loneliness	4.75	2.34	.83	.95	.59***	(.95)		
3. Brand loyalty	5.92	1.85	.63	.83	.11*	.02	(.83)	
4. Brand assortment	5.94	1.66	.62	.91	.07	.18***	-.11*	(.91)

Coefficient alpha ( $\alpha$ ) is presented in the diagonal.

AVE = Average variance extracted, CR = Composite reliability.

\*\*\*  $p < .01$  \*\*  $p < .05$  \*  $p < .10$

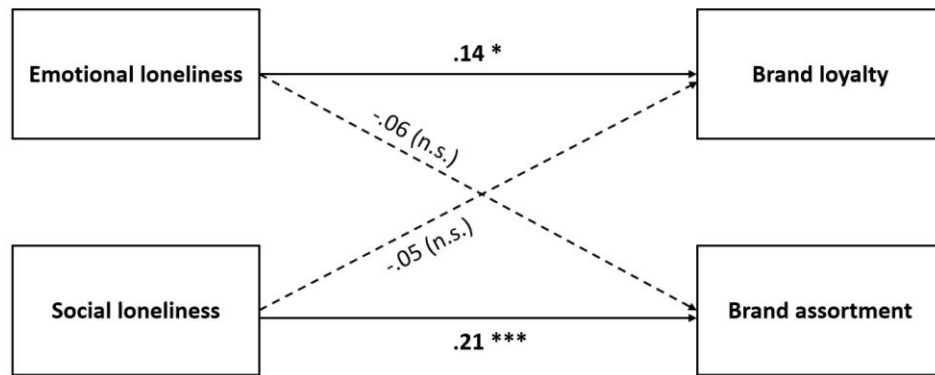
Table A10. Standardized Factor Loadings

		Standardized factor loading
Emotional loneliness	I wish I had someone to talk to about personal topics.	.741
	I wish I had deeper relationships in my life.	.919
	I wish I had a closer connection in my life.	.944
	I wish I had a more intimate bond in my life.	.814
Social loneliness	I wish I had more people to socialize with.	.880
	I wish I had more friends.	.932
	I wish I had a bigger social circle.	.943
	I wish my social circle included more people.	.890
Brand loyalty proneness	I prefer one brand of most products I buy.	.718
	I am willing to make an effort to search for my favorite brand.	.802
	Usually, I care a lot about which particular brand I buy.	.847
Brand assortment	I like being a customer of a wide assortment of brands.	.779
	I'm interested in connecting with several brands.	.843
	I prefer to be a customer of numerous brands.	.886
	I like buying from different brands.	.864
	It's nice when brands that I've never had a relationship with want me as a customer.	.651
	When it comes to brands more options are better.	.674

*Structural model analysis.* The structural equation model was estimated using Mplus to test the hypothesized relationships among loneliness, brand loyalty, and assortment. The fit indices for the model indicated a good model fit ( $\chi^2(113) = 300.98, p < 0.01$ ; CFI = 0.95; TLI = 0.94; SRMR = 0.06; RMSEA = 0.08). The standardized estimates are presented in Figure A3.

Emotional loneliness showed a marginally positive relationship with brand loyalty ( $\gamma = .14, p = .08$ ), but no relationship with brand assortment ( $\gamma = -.06, p = .47$ ). On the other hand, social loneliness showed a positive relationship with brand assortment ( $\gamma = .21, p = .01$ ), but no relationship with brand loyalty ( $\gamma = -.05, p = .54$ ). Supporting the expectation, these results suggest that two-dimensions of loneliness lead to different brand relationships. Brand loyalty is positively associated with emotional loneliness while the brand assortment is positively associated with social loneliness.

Figure A3. Structural Equation Model of Two-dimensions of Loneliness and Brand Relationships



## Discussion

Study 2 provides initial evidence that two-dimensions of loneliness have distinct effects on brand relationships. Emotional loneliness is associated with brand loyalty but not with brand assortment. On the other hand, social loneliness is associated with brand assortment but not with brand loyalty. This clearly shows that lonely individuals are not homogenous. They can show different tendencies of brand loyalty and preference on brand assortments depending on specific dimensions of loneliness.

### Study 3. Loneliness Dimensions and Brand Choices

Study 2 found that two-dimensions of loneliness are linked to brand loyalty and brand assortment differently. Study 3 aims to provide further evidence. Study 3 is different in three important ways. First, study 3 manipulated two dimensions of loneliness by using a writing task. Participants recalled previous social experiences related to emotional or social loneliness. Second, study 3 used a brand choice scenario. Using a water brand choice situation, participants made a series of brand choices and indicated their brand loyalty toward the chosen brands. Third, study 3 aimed to rule out factors known to relate to loneliness and brand preference: controllability, meaninglessness, and self-esteem (Twenge, Catanese, & Baumeister, 2003). Lack of control increases brand switching (Su et al., 2017). People buy or own brands in order to sustain or enhance self-image such as self-esteem and meaningfulness (Graeff, 1996; Kressmann et al., 2006; Nam, Ekinici, & Whyatt, 2011). Study 3 rules out these alternative explanations.

In study 3, I expected that high emotional loneliness will result in higher brand loyalty toward their selected brands. In contrast, high social loneliness will result in a larger assortment of chosen water brands.

#### Material and methods

*Participants and design.* Four hundred sixty-four participants were recruited from Amazon's Cloud Research in exchange for a small payment. Participants were randomly assigned to one of four conditions in a 2 (loneliness level: high vs. low) x 2 (loneliness dimension: emotional vs. social) between-subjects design. Thirty-four participants were excluded due to missing or nonsensical responses, leaving four hundred thirty participants (49.3% female, age range = 18 - 80,  $M_{\text{age}} = 37.39$ ).

*Procedure.* The first task manipulated the loneliness dimensions by having participants recall and write about an experience from their past. Specifically, in the high (low) emotional

loneliness condition, they were instructed to “Please tell us about a time when you felt you lacked (had) a close relationship with one other person. Although you may have had casual friendships or acquaintances, you felt like you didn't have (also had) a deep bond.” In the high (low) social loneliness condition, they were instructed to “Please tell us about a time when you felt you had a small (large) social circle. Although you may have had a best friend or romantic partner, you felt like you had very few (had many) casual friendships and acquaintances.”

Next, participants were asked to imagine that they visited a convenience store every day to buy a bottle of water for their lunch. Five water brands were available (Nestle pure life water, Dasani, Smartwater, Fiji, and Aquafina) and they were asked to choose one each day for a five-day period. The number of brands selected ranged from one to five. Next, participants indicated brand loyalty using five items adapted from Fournier (1994) ( $\alpha = .90$ , “I am loyal to [brand]”; “I have a close relationship with [brand]”; “A year from now I am likely to drink [brand]”; “I am satisfied with [brand]”; “I am committed to [brand]”) on a nine-point scale (1 = “strongly disagree”, 9 = “strongly agree”).

Finally, participants answered items that previous research suggests relate to loneliness and brand purchase including controllability (Twenge et al., 2003), meaninglessness (Twenge et al., 2003), and self-esteem ( $\alpha = .90$ ; Zadro, Williams, & Richardson, 2004) along with seven-point scales (1= “very untrue of me”, 7= “very true of me”). Demographics were measured and participants were debriefed. No participants correctly guessed the purpose of this study. See Appendix C for the methodological details.

## Results

*Manipulation checks.* A separate test was conducted to examine whether the manipulation had an intended effect on each loneliness. Using Cloud research, four hundred eighty-nine participants (53.8% female, age range = 18 - 79,  $M_{age} = 40$ ) were randomly assigned to one of the four conditions: 2 (loneliness level: high vs. low) x 2 (loneliness dimension:

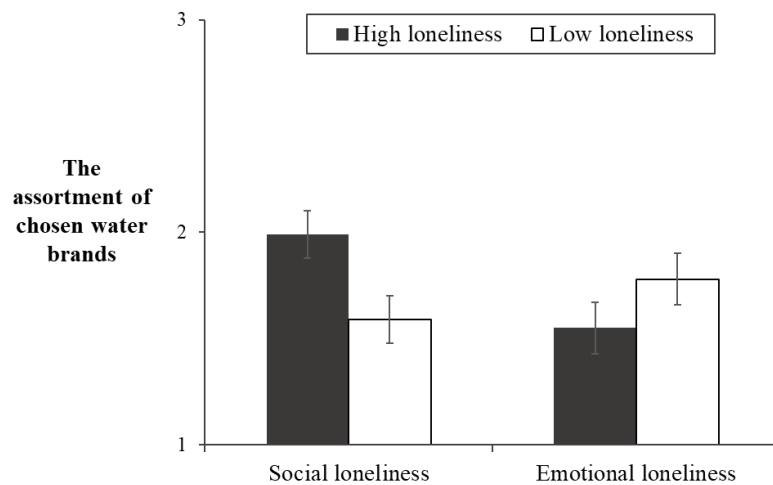
emotional vs. social). After writing their experience following a given scenario, they completed eight manipulation check items on a nine-point scale (1= “strongly disagree”, 9= “strongly agree”). Four items indicated emotional loneliness ( $\alpha = .96$ ), and four indicated social loneliness ( $\alpha = .97$ ).

A 2 (loneliness level) x 2 (loneliness dimension) ANOVA was conducted on emotional loneliness and social loneliness respectively. First, regarding emotional loneliness, there was no interaction ( $F(1, 425) = 1.18, p = .28$ ). The main effects of loneliness level ( $F(1, 485) = 61.96, p < .001, \eta_p^2 = .11$ ) and loneliness dimension ( $F(1, 485) = 6.53, p = .01, \eta_p^2 = .01$ ) were significant. As expected, participants in the high emotional loneliness condition felt greater emotional loneliness ( $M = 6.87, SE = .22$ ) than those in the low emotional loneliness condition ( $M = 4.95, SE = .22; F(1, 485) = 30.06, p < .001, \eta_p^2 = .08$ ), the high social loneliness condition ( $M = 6.09, SE = .21; F(1, 485) = 6.51, p = .01, \eta_p^2 = .01$ ), and the low social loneliness condition ( $M = 4.63, SE = .21; F(1, 485) = 54.42, p < .001, \eta_p^2 = .10$ ). Furthermore, regarding social loneliness, there was no interaction ( $F(1, 485) = 0.54, p = .46$ ) but significant main effects of loneliness level ( $F(1, 485) = 42.89, p < .001, \eta_p^2 = .08$ ) and of loneliness dimension ( $F(1, 485) = 4.00, p = .046, \eta_p^2 = .01$ ). Participants in the high social loneliness condition felt a greater level of social loneliness ( $M = 6.69, SE = .22$ ) than those in the low social loneliness condition ( $M = 5.07, SE = .22; F(1, 485) = 27.26, p < .001, \eta_p^2 = .05$ ), the high emotional loneliness condition ( $M = 6.08, SE = .23; F(1, 485) = 3.67, p = .056, \eta_p^2 = .01$ ), and the low emotional loneliness condition ( $M = 4.79, SE = .22; F(1, 485) = 36.51, p < .001, \eta_p^2 = .07$ ). In short, the emotional and social loneliness manipulations were effective.

*Brand assortment.* It was predicted that participants experiencing high social loneliness would choose more water brands than those experiencing low social loneliness, whereas participants experiencing high emotional loneliness would not. The 2 (loneliness level) x 2 (loneliness dimension) ANOVA on brand assortment revealed a significant interaction between them ( $F(1, 426) = 7.44, p = .01, \eta_p^2 = .02$ ), but no main effect of loneliness level ( $F(1, 426) =$

0.58,  $p = .45$ ) and loneliness dimension ( $F(1, 426) = 1.27, p = .26$ ). Consistent with the prediction, planned contrasts revealed that participants in the high social loneliness condition chose more brands of bottled water ( $M = 1.99, SE = .11$ ) than those in the low social loneliness condition ( $M = 1.59, SE = .11; F(1, 426) = 6.41, p = .01, \eta_p^2 = .02$ ). However, there was no difference in the number of chosen brands between those with high emotional loneliness ( $M = 1.55, SE = .12$ ) and low emotional loneliness condition ( $M = 1.78, SE = .12; F(1, 426) = 1.84, p = .18$ ). Moreover, even though it was not hypothesized it is noteworthy that the number of brands chosen by those in the high social loneliness condition ( $M = 1.99, SE = .11$ ) was significantly higher than those in the high emotional loneliness condition ( $M = 1.55, SE = .12; F(1, 426) = 7.37, p = .01, \eta_p^2 = .02$ ). See Figure A4.

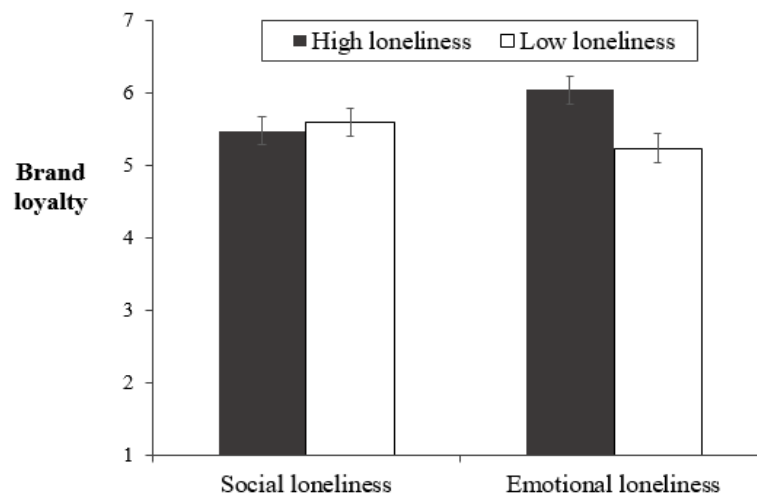
Figure A4. The Effect of Loneliness Dimensions on The Assortment of Chosen Brands (Study 2)



Error bars indicate standard error

*Brand loyalty.* It was expected that participants in the high emotional loneliness condition would show stronger brand loyalty than those in the low emotional loneliness condition (H2a), whereas participants in the high social loneliness condition would not (H2b). Brand loyalty scores were obtained by averaging loyalty items for the chosen water brands. A 2 (loneliness level: high vs. low) x 2 (loneliness dimension: emotional vs. social) ANOVA revealed a significant interaction ( $F(1, 426) = 5.35, p = .02, \eta_p^2 = .01$ ). There was a marginal main effect of loneliness level ( $F(1, 426) = 3.02, p = .07, \eta_p^2 = .01$ ) and no main effect of loneliness dimension ( $F(1, 426) = 0.33, p = .57$ ). Specifically, planned contrasts revealed that participants in the high emotional loneliness condition ( $M = 6.04, SE = .20$ ) showed stronger brand loyalty than those in the low emotional loneliness condition ( $M = 5.24, SE = .20; F(1, 426) = 8.00, p = .01, \eta_p^2 = .02$ ), supporting H2a. However, participants in the high social loneliness condition ( $M = 5.48, SE = .19$ ) and in the low social loneliness condition ( $M = 5.58, SE = .19$ ) showed no difference in brand loyalty ( $F(1, 426) = 0.14, p = .71$ ), supporting H2b. Additionally, those in the high social loneliness condition ( $M = 5.48, SE = .20$ ) reported significantly less loyalty than those in the high emotional loneliness ( $M = 6.04, SE = .20; F(1, 426) = 4.13, p = .04, \eta_p^2 = .01$ ). See Figure A5.

Figure A5. The Effect of Loneliness Dimensions on Brand Loyalty (Study 2)



Error bars indicate standard error



*Alternative explanations.* Previous research suggests that loneliness can lead to feelings of lack of control (Su et al. 2017), meaninglessness (Twenge et al. 2003), and low self-esteem (Zadro et al. 2004). To rule out these alternative explanations, I conducted a 2 (loneliness level) x 2 (loneliness dimension) ANCOVA on the brand number with these alternative explanatory variables as covariates. Including these variables did not change the conclusion regarding the number of brands chosen and the key interaction remained significant ( $F(1, 422) = 7.54, p = .01, \eta_p^2 = .02$ ). Similarly, the analysis of brand loyalty with these covariates did not change the conclusion, and the key interaction remained significant ( $F(1, 422) = 5.58, p = .02, \eta_p^2 = .01$ ). Furthermore, analysis using these factors as dependent variables showed no significant interaction on lack of control ( $F(1, 425) = 0.11, p = .74$ ), meaningfulness ( $F(1, 425) = 0.32, p = .58$ ), and self-esteem ( $F(1, 425) = 0.22, p = .64$ ). These findings suggest that these factors cannot explain the findings.

## Discussion

Study 3 illustrates that different loneliness dimensions have different outcomes for brand relationships. The number of brands chosen was affected by social loneliness but not by emotional loneliness. Individuals who felt like they had too few relationships (high social loneliness) chose more brands than those who felt like they had an adequate number of relationships (low social loneliness). However, lacking (vs. having adequate) closeness in relationships did not affect the brand assortment. On the other hand, brand loyalty increased with emotional loneliness, but not social loneliness. Individuals feeling a lack of close relationships (high emotional loneliness) showed stronger brand loyalty than those having intimate relationships, but this was not the case for high social loneliness.

## Study 4. Loneliness and Advertisement Emphasis

Study 3 showed that different dimensions of loneliness affect brand relationships. However, its conclusions are limited by the use of separate measures of desired brand relationships (loyalty versus brand number). To overcome this limitation, study 3 uses a single measure. Specifically, participants were asked about their likelihood of purchasing a single brand featured in an advertisement, a monthly sock delivery service. The advertisement's message was manipulated to emphasize either loyal devotion or a wide assortment of multiple brands. It is expected that participants in the emotional loneliness condition will show a greater willingness to purchase a brand that emphasizes loyalty than one emphasizing multiple brands. On the other hand, participants in the social loneliness condition are expected to show a greater willingness to purchase a brand emphasizing a wide selection of multiple brands than one emphasizing loyalty.

Using a retail brand also helps rule out another explanation. Our conceptualization proposes that consumers' relationships with brands act as substitutes for their relationships with people. But another possibility must be considered—brand instrumentality, specifically that consumers use brands to develop relationships with people (Escalas & Bettman, 2005). Many brands are purchased to attract romantic partners (Brick, Fitzsimons, Chartrand, & Fitzsimons, 2018), belong to social groups (Loughran Dommer, Swaminathan, & Ahluwalia, 2013; Mead, Baumeister, Stillman, Rawn, & Vohs, 2011), and develop interpersonal relationships (Huang, Huang, & Wyer, 2017; Loveland, Smeesters, & Mandel, 2010). Study 3 involved multiple brands and it's possible that brand ownership is instrumental for developing interpersonal relationships. For example, choosing multiple brands might be a more effective strategy for attracting multiple friends, thus alleviating social loneliness, whereas loyalty to a single brand might signal dependability in order to develop deep connections with people to alleviate emotional loneliness. To address this instrumentality concern, study 4 used a single brand to reduce the likelihood that a brand acts as a social signal, making an instrumental explanation unlikely.

## Material and methods

*Participants and design.* A total of four hundred fifty-eight participants were recruited from Amazon's Mechanical Turk. Due to nonsensical answers and non-response, twenty-eight participants were dropped from the analysis, leaving four hundred thirty participants (52.3% females, age range= 19–77,  $M_{\text{age}} = 36.81$ ). They were randomly assigned to one of six conditions in a 3 (loneliness: emotional loneliness vs. social loneliness vs. control) x 2 (ad emphasis: brand loyalty vs. brand number) between-subjects design.

*Procedure.* The first task manipulated loneliness by asking participants to read a scenario in which their friendships changed. Specifically, participants in the emotional loneliness condition read that although they had many casual friendships, recently their relationship with their best friend was not as deep and they felt emotionally distant. Those in the social loneliness condition read that although they felt close with their best friend, all of their casual friends moved away, reducing the size of their social circle. Participants in the control condition read a scenario unrelated to loneliness (See Appendix D).

Following the manipulation, participants viewed an advertisement for an online subscription service (a hypothetical brand, J Socks Box) that delivered a new pair of socks each month. The advertisements were identical across conditions except for the copy. The brand loyalty emphasis condition stated: "Socks devotedly selected for you by our J Socks Box, delivered monthly." The brand assortment emphasis condition stated: "Socks from a wide selection of different brands, delivered monthly." A separate pretest ( $n = 81$ ) indicated that the loyalty condition emphasized loyal relationships ( $M = 7.21$ ,  $SE = .17$ ) more than the brand assortment condition ( $M = 5.35$ ,  $SE = .22$ ;  $F(1, 80) = 42.53$ ,  $p < .001$ ,  $\eta_p^2 = .35$ ) whereas the brand assortment condition ( $M = 7.62$ ,  $SE = .19$ ) emphasized multiple options more than the loyalty condition ( $M = 5.67$ ,  $SE = .25$ ;  $F(1, 80) = 35.85$ ,  $p < .001$ ,  $\eta_p^2 = .31$ ). The two versions of the advertisement did not differ in their overall evaluation ( $M_{\text{loyalty}} = 5.55$ ,  $SE = .21$  vs.  $M_{\text{brand number}} = 5.63$ ,  $SE = .20$ ;  $F(1, 80) = 0.19$ ,  $p = 0.66$ ).

Participants indicated their willingness to purchase using three items ( $\alpha = .88$ , “Please describe your overall feeling about purchasing this service from J Socks Box”: 1 = “never purchase it,” 9 = “definitely purchase it”; “Assuming that it was within your budget how likely would you be to use the service described in the ad?”: 1 = “definitely would not use it”, 9 = “definitely would use it”; “If you need a sock subscription, how likely are you to use J Socks Box?”: 1 = “extremely unlikely”, 9 = “extremely likely”). The remainder of the study was identical to study 2.

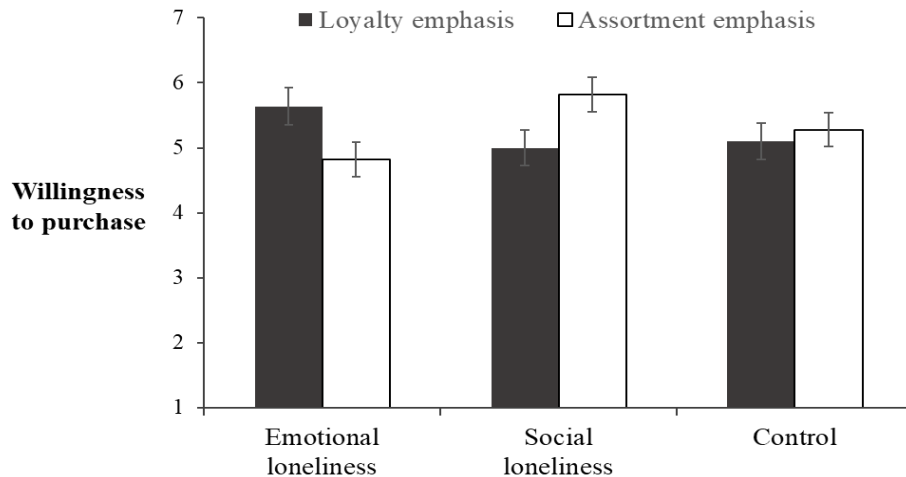
## Results

*Manipulation check.* A post-test manipulation check assessed the effectiveness of the loneliness manipulations. Three hundred fifty-eight participants (55.3% female, age range = 20 - 80,  $M_{age} = 41$ ) were recruited from Amazon’s Cloud Research. They were randomly assigned to one of three conditions (loneliness: emotional loneliness vs. social loneliness vs. control) in a between-subjects design. Participants elaborated a social situation along with the assigned condition and rated on the eight items of emotional ( $\alpha = .97$ ) and social loneliness ( $\alpha = .98$ ). A one-way ANOVA on emotional loneliness revealed a significant main effect of the condition ( $F(1, 355) = 38.56, p < .001, \eta_p^2 = .18$ ). As expected, participants in the emotional loneliness condition who imagined a growing distance with their best friend reported feeling a greater level of emotional loneliness ( $M = 6.30, SE = .24$ ) than those in the control condition ( $M = 3.73, SE = .19; F(1, 355) = 69.06, p < .001, \eta_p^2 = .16$ ) and the social loneliness condition ( $M = 5.54, SE = .24; F(1, 355) = 4.99, p = .03, \eta_p^2 = .01$ ). A one-way ANOVA on the social loneliness also revealed a significant main effect of the condition ( $F(1, 355) = 25.60, p < .001, \eta_p^2 = .13$ ). Participants in the social loneliness condition who thought about losing touch with multiple casual friends ( $M = 6.26, SE = .25$ ) reported feeling a greater level of social loneliness than those in the control condition ( $M = 4.06, SE = .20; F(1, 355) = 46.03, p < .001, \eta_p^2 = .12$ ) and a

marginally greater level of social loneliness than those in the emotional loneliness condition ( $M = 5.59$ ,  $SE = .25$ ;  $F(1, 355) = 3.47$ ,  $p = .063$ ,  $\eta_p^2 = .01$ ). It confirmed the manipulation was effective.

*Willingness to purchase.* It was predicted that emotionally lonely individuals would be more willing to purchase when the advertisement emphasized loyalty rather than the number of brands available, whereas socially lonely individuals would be more willing to purchase when the advertisement emphasized the number of brands rather than loyalty. To test this, a 3 (loneliness) x 2 (ad emphasis) ANOVA was conducted on the willingness to purchase. Results revealed a significant interaction ( $F(2, 424) = 4.68$ ,  $p = .01$ ,  $\eta_p^2 = .02$ ), but no main effects of loneliness ( $F(1, 424) = 0.44$ ,  $p = .65$ ) and ad emphasis ( $F(1, 424) = 0.03$ ,  $p = .86$ ). As shown in Figure A6, participants in the emotional loneliness condition, who imagined shallow relationships with their best friend, showed a greater willingness to purchase when the ad emphasized loyalty ( $M = 5.64$ ,  $SE = .28$ ) than the number of brands ( $M = 4.82$ ,  $SE = .27$ ;  $F(1, 424) = 4.61$ ,  $p = .03$ ,  $\eta_p^2 = .01$ ). On the other hand, the participants in the social loneliness condition, who imagined losing touch with multiple casual friends, showed a greater willingness to purchase when the ad emphasized the number of brands ( $M = 5.82$ ,  $SE = .26$ ) than brand loyalty ( $M = 5.00$ ,  $SE = .27$ ;  $F(1, 424) = 4.69$ ,  $p = .03$ ,  $\eta_p^2 = .01$ ). But participants in the control condition showed no differences between brand loyalty ( $M = 5.10$ ,  $SE = .28$ ) and brand number emphasis ( $M = 5.23$ ,  $SE = .26$ ;  $F(1, 424) = 0.11$ ,  $p = .74$ ).

Figure A6. The Effect of Loneliness Dimensions and Advertisement on Willingness to Purchase (Study 3)



Error bars indicate standard error

Could these results reflect attitudes towards the advertisement itself rather than a desired relationship with the brand? This does not appear to be the case. Evaluations of the ad did not differ by the loneliness dimension ( $F(1, 424) = 0.12, p = .89$ ), the ad emphasis ( $F(1, 424) = 0.001, p = .98$ ), nor their interaction ( $F(2, 424) = 0.79, p = .45$ ).

*Alternative explanations.* To examine whether these findings may be due to other factors such as lack of control (Su et al. 2017), self-esteem, and meaninglessness (Zadro et al. 2004), I conducted a 3 (loneliness) x 2 (ad emphasis) ANCOVA toward the willingness to purchase with these covariates. Including these variables did not change the conclusion and the key interaction remained significant for willingness to purchase ( $F(2, 421) = 3.51, p = .03, \eta_p^2 = .02$ ).

Furthermore, the effect of loneliness on these variables was also examined. The two-way ANOVA with 3 (loneliness) x 2 (ad emphasis) found no interaction effects on low self-esteem ( $F(2, 424) = 0.60, p = .55$ ), meaninglessness ( $F(2, 424) = 0.16, p = .85$ ), and lack of control ( $F(2, 424) = 1.85, p = .16$ ). Thus, these factors cannot explain the findings.

## Discussion

Study 4 provides further support for the effect of two dimensions of loneliness on brand relationships. Emotionally lonely individuals preferred the brand when its ad emphasized loyal relationships than a wide assortment. But socially lonely individuals preferred the brand more when its ad emphasized a wide selection than when it emphasized loyal relationships. These results suggest that the findings are unlikely due to a brand instrumentality explanation since participants rated a single brand.

## Study 5: Changing Beliefs about Brands as Social Substitute

Study 5 explores a boundary condition. It was predicted that the findings are due to the widespread implicit belief that brands can substitute for their friends or family by providing a sense of companionship. However, for those individuals who do not believe this, the loneliness dimension should not affect brand relationships. Study 5 tests this prediction by modifying the previous study's design to manipulate participant's lay beliefs.

### Material and methods

*Participants and design.* A total of six hundred forty-three participants were recruited from Mechanical Turk in exchange for payment. After dropping thirty-seven participants who did not properly follow the instruction (e.g., nonsensical answer, nonresponses), six hundred six participants (53.3% females, age range = 18–73,  $M_{\text{age}} = 36.72$ ) were used for the analysis. They were randomly assigned to one condition in a 2 (loneliness dimension: emotional vs. social) x 2 (ad emphasis: brand loyalty vs. multiple brands) x 2 (lay beliefs about brand relationship: baseline vs. non-substitute) between-subjects design.

*Procedure.* The first task was an ostensible reading comprehension task, but in reality, was designed to manipulate lay beliefs. In the non-substitute condition, participants read a short article about how consumers often mistakenly form social-like relationships with brands, but research suggests that brands cannot provide companionship. The baseline condition was an article about a neutral topic—the history of chocolate. The number of words in the articles (109) was identical across conditions. After participants read the article, they summarized it using their own words. For the manipulation check of lay belief about a brand relationship, two items were measured on the nine-point scale at the end of the study (“I believe that I can build a human-like relationship with brands”; “I believe that brands can provide a feeling of companionship, 1= “not at all”, 9= “very much”;  $\alpha=.94$ ). Also, to rule out alternative explanations of other related



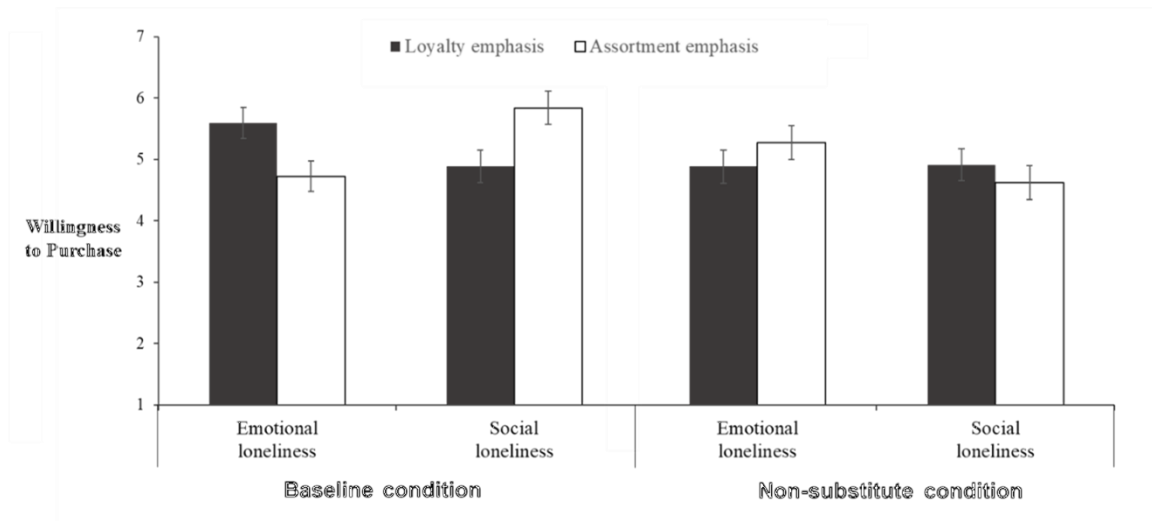
emotions, the PANAS measure was included (10 items PANAS scale; 1= “very slight or not at all”, 5= “extremely”; Thompson, 2007). The remainder of the procedure was identical to study 4. See Appendix E.

## Results

*Willingness to Purchase.* It was predicted that the baseline condition would replicate the result. In contrast, this effect will disappear in the non-substitute condition. An ANOVA with a 2 (loneliness dimension) x 2 (advertisement emphasis) x 2 (lay beliefs about brand relationship) was conducted on the willingness to purchase a brand. Results revealed a significant three-way interaction ( $F(1, 598) = 10.94, p = .001$ ), but no main effects or two-way interactions ( $p > .71$ ).

To further understand the three-way interactions, simple main effect analysis was conducted. Results showed that the baseline condition replicated the result of study 4 with a significant interaction between loneliness dimension and ad emphasis ( $F(1, 598) = 12.07, p = .001, \eta_p^2 = .02$ ). Participants in the emotional loneliness condition showed a stronger willingness to purchase when the advertisement emphasized loyalty ( $M = 5.59, SE = .26$ ) than brand assortment ( $M = 4.73, SE = .25; F(1, 598) = 5.75, p = .02, \eta_p^2 = .01$ ). However, participants in the social loneliness condition showed a stronger willingness to purchase when the advertisement emphasized brand assortment ( $M = 5.84, SE = .27$ ) than loyalty ( $M = 4.89, SE = .26; F(1, 598) = 6.32, p = .01, \eta_p^2 = .01$ ). As predicted, these effects disappeared in the non-substitute condition. There was no significant interaction between loneliness dimension and ad emphasis ( $F(1, 598) = 1.55, p = .21$ ), supporting H3. The participants in the emotional loneliness condition showed no difference in the willingness to purchase a brand with a loyalty emphasis ( $M = 4.88, SE = .27$ ) and the number emphasis ( $M = 5.27, SE = .28; F(1, 598) = 0.99, p = .32$ ). Also, in the social loneliness condition, there was no difference in the willingness to purchase the brand between the loyalty emphasis ( $M = 4.91, SE = .26$ ) and the number emphasis ( $M = 4.62, SE = .28; F(1, 598) = 0.58, p = .45$ ). See Figure A7.

Figure A7. Lay Beliefs about Brand Relationships on Willingness to Purchase (Study 4)



Error bars indicate standard error

*Alternative explanations.* Other factors such as lack of control (Su et al., 2016), self-esteem (Zadro et al., 2004), meaninglessness, and other emotions (Twenge et al., 2003) were unable to account for our findings. A three-way ANCOVA toward the willingness to purchase with these covariates did not change the key interactions ( $F(1, 592) = 10.57, p = .02, \eta_p^2 = .02$ ). Furthermore, I also examined the effect of loneliness, ad emphasis, and brand belief on these variables. The three-way ANOVA on these factors found no interaction effects on self-esteem ( $F(1, 598) = 0.162, p = .69$ ), meaninglessness ( $F(1, 598) = 0.10, p = .75$ ), lack of control ( $F(1, 598) = 0.16, p = .69$ ) and PANAS emotion scales ( $F(1, 598) = 0.79, p = .37$ ).

## Discussion

This study highlights an important boundary condition. The effect of loneliness dimensions on brand preferences disappears when participants believed that brand relationships cannot substitute for human relationships. It is unclear how many consumers believe that brand relationships can substitute for human relationships, but it is likely that the tendency to believe it

increases as individuals seek ways to cope with it. Furthermore, this study suggests other factors (emotions, control, self-esteem, and meaninglessness) cannot explain these findings.

## 1.8. General Discussion

Loneliness is one of the major social issues of the early 21<sup>st</sup> century and a thorough understanding is important for policymakers and marketers. Yet loneliness is more complicated than is typically acknowledged. The present study demonstrates the consequences of the multidimensional nature of loneliness on brand relationships. Individuals experiencing loneliness due to inadequate quality in their relationships tended to show stronger brand loyalty whereas individuals experiencing loneliness due to the insufficient quantity in their relationships tended to prefer multiple brands rather than any single one. Consumers appear to be forming relationships with the brand themselves as substitutes for human relationships rather than using the brands as an instrument to build relationships with other humans.

### 1.7.1. Theoretical Contribution

This research contributes to the literature. First, the findings suggest a possible resolution to an inconsistency in the literature on the relationship between loneliness and brand loyalty. While some research suggests that loneliness increases brand loyalty (Lastovicka & Sirianni, 2011; MacInnis & Folkes, 2017; Tsai, 2014), other research implies that it decreases loyalty (Long et al., 2015; Su et al., 2016). The inconsistency may be due to their manipulations or measures that generate different dimensions of loneliness. Specifically, Tsai's (2014) finding that lonely consumers form stronger loyalty towards brands may be due to a manipulation that likely emphasized emotional loneliness. After interacting with multiple people, participants in the loneliness condition were told that no one wanted further interaction with them. Having nobody with whom to build deeper relationships will increase emotional loneliness (Weiss, 1973). Lastovicka and Sirianni's (2011) finding that loneliness strengthens brand relationships may be because that they measured loneliness related to failed romantic relationships. Unsatisfied

romantic relationship (e.g., divorce, no dating, death of a spouse) is likely to cause emotional loneliness (Ditommaso et al., 2004). However, Long et al. (2015) finding that lonely individuals showed lower brand loyalty was based on studies employing a Cyberball game with strangers, which is likely to be social loneliness. Moreover, Su et al.'s (2016) finding that socially excluded individuals switch brands more frequently, implying lower brand loyalty, measured social exclusion as the number of relationships in popular social media, an indicator corresponding to social loneliness. In this dissertation, the conceptualization allows for loneliness to both increase and decrease brand loyalty, depending on the different dimensions of loneliness, potentially reconciling these discrepancies in the literature.

Second, responding to the calls for research about multidimensional loneliness (Lastovicka & Sirianni, 2011; Sinha & Wang, 2013), this research provides methods for future research. A growing number of researchers examining lonely consumers may adopt the new scales (study 1) and manipulations (e.g., recalled memory writing – study 2, friend scenario manipulation – study 3, 4) in their research.

Third, existing brand research has mostly focused on concepts related to brand relationship quality (e.g., brand loyalty, attachment, commitment; Khamitov, et al. 2019), largely overlooking the quantity dimension (e.g., brand assortment). Although some research found that consumers prefer a large brand assortment to satisfy multiple users and to use for multiple situations (Abdul-Muhmin, 1999; McAllister & Pessemer, 1982), less attention has been paid to brand quantity. This research provides a rich understanding both of the quality (brand loyalty) and quantity (brand assortment) of brand relationships.

### 1.7.2. Practical Implication

Practically, this research provides implications for policymakers attempting to deal with loneliness. Policymakers must realize that lonely individuals are not homogenous in their social needs and a bi-dimensional view may lead to more effective policies. Governments and non-

profit organizations have recently expanded services designed to reduce loneliness, such as nursing services, health care, and community campaigns. Especially after the spread of COVID-19, programs to tackle loneliness are becoming more important (Killgore, Cloonan, Taylor, & Dailey, 2020). This research suggests that campaigns to reduce loneliness should involve dual goals to foster relational quality and quantity.

The current research has implications for marketing managers as well. Although I don't advocate that marketers capitalize on consumer loneliness, marketers must recognize how loneliness trends will inevitably impact their efforts. First, brand actions towards lonely consumers should be incorporated into relationship marketing by providing intimate attachment to emotionally lonely consumers, and multiple brand experiences for socially lonely consumers. For example, loyalty programs such as customized management, personal care, and loyalty reward programs can be offered to deeply lonely consumers, whereas brand alliances such as co-branding, cross-brand promotions, and bundles with multiple brands may be more appropriate for broadly lonely consumers. Although determining consumers' dominant loneliness dimensions is not straightforward, it may be inferred from the situation. Certain industries may have customers more prone to particular dimensions of loneliness. For instance, divorce-specialized law firms, funeral services, and dating services are likely to be associated with emotional loneliness, whereas moving industries and universities are likely to be associated with social loneliness (Weiss, 1973). Signals of these loneliness dimensions might also be obtained from customer profiles on social media, such as the number of friends, relationship status (e.g., divorce, romantic relationship, widow, a recent movement to a new town, etc.).

Finally, this research highlights the potential for brand assortment as a strategic alternative to brand loyalty. Retailers often view extensive brand assortment—brands that are not consumer's favorites—as costly waste to be reduced (Broniarczyk, Hoyer, & McAlister, 1998). And brand portfolio strategies often recommend reducing assortment by eliminating

underperforming brands to focus on the best (Kumar, 2003). In contrast to this prevailing view, the current research suggests that brand assortment may be a worthy goal for its own sake.

### 1.7.3. Limitations and Future Directions

The current research raises several questions for future research. First, how effectively and sustainably can brand relationships reduce loneliness? Although different dimensions of loneliness lead to different consumer-brand outcomes, it is unclear if they alleviate loneliness. The brand aid perspective (Reimann, Nuñez, & Castaño, 2017) suggests that brand relationships may reduce loneliness. Some evidence suggests that loneliness can be alleviated by using humanized products (Mourey et al., 2017), eating comfort foods (Troisi, Gabriel, Derrick, & Geisler, 2015), and watching favorite TV programs (Derrick, Gabriel, & Hugenberg, 2009). Also, according to the optimal matching theory of social support (Cutrona & Russell, 1990), specific social support matched to particular needs can help reduce psychological stress. But other perspectives indicate that such relationships create a materialism trap that exacerbates rather than solves the problem (Pieters, 2013; Van Boven, Campbell, & Gilovich, 2010). Future research should explore brand relationship's ability to alleviate loneliness.

Second, what is the relationship between social exclusion and loneliness? This research covered both loneliness and social exclusion literature, but strictly speaking, the two differ in that social exclusion is due to an experience of being ignored or abandoned (Lee & Shrum, 2012) while loneliness is a subjective unpleasant feeling of social isolation (Leary, 1990). Loneliness can emerge from factors other than rejection, such as unsatisfactory relational quality, infrequent social contact, small network size, and personality (de Jong Gierveld, 1998). Future research may need to explore more whether loneliness and social exclusion have different influences on consumers.

Third, what is the relationship between emotional and social loneliness? Although the two dimensions of loneliness are distinct (Cutrona & Russell, 1990; DiTommaso & Spinner,

1997), they are not necessarily orthogonal (Sinha & Wang, 2013; Weiss, 1973). Theoretically, there is an asymmetric relationship. Increasing relationship quality can resolve emotional loneliness but not social loneliness, whereas increasing the quantity could potentially resolve both social and emotional loneliness. New relationships can provide a potential chance to build intimacy (e.g., a new romantic relationship). Thus, unlike social loneliness, emotional loneliness can be resolved in two ways: deepening existing relationships and creating a new deep relationship.

Finally, how would individual differences in social needs affect brand consumption? People vary in their relational needs. For example, an introvert may need deep relationships but prefer fewer relationships, unlike an extrovert. Their compensatory ways with brands may vary depending on their personality. Future studies should examine how the loneliness types and extrovert/introvert personality interact to affect brand relationships.

Loneliness is a growing concern, making it important to understand its influence on consumer behavior. I hope that the present research helps our understanding of the multidimensional nature of loneliness and its impact on consumers' brand relationships.



## CHAPTER II

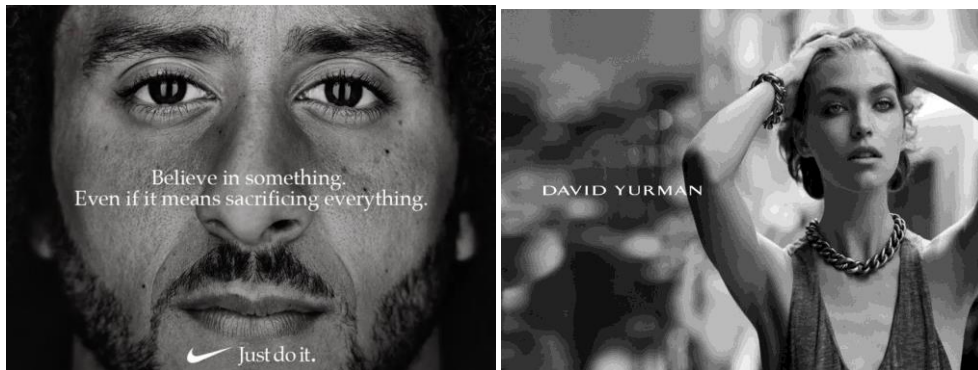
### ESSAY 2. GAZE IN AN ADVERTISEMENT AND CONSUMER'S AD RESPONSE

#### 1.2. INTRODUCTION

##### 2.1.1. Current Issues

Eyes are powerful cues in social interaction (Kleinke, 1986). Especially recently, as many people wear masks due to Covid-19, eyes have become a meaningful facial cue (Holt, 2020). The impact of eyes is also important in advertisements that feature models (To & Patrick, 2020). One of the important decisions facing advertisers is whether the models should have a direct gaze or an averted gaze. Consider Nike's print ad featuring Colin Kaepernick (Figure B1, left image). The award-winning ad displays his direct gaze by looking at viewers. A David Yurman's jewelry ad featuring Arizona Muse portrays her averted gaze, looking away from viewers (Figure B1, right image).

Figure B1. Advertisements with Gaze



Does *where* a model's eyes look matter? Previous research suggests that when a model looks at the target product instead of viewers, it results in more positive effects such as higher product memory and advertisement attitude (Adil, Lacoste-Badie, & Droulers, 2018; Droulers & Adil, 2015; Palcu, Sudkamp, & Florack, 2017; Sajjacholapunt & Ball, 2014; Q. Wang, Wedel, Huang, & Liu, 2018). This is based on an attention effect. The model's gaze toward a product directs the viewer's attention to it, and thus, the increased attention to the product enhances information processing regarding the target product. Most prior work on the visual aspects of advertising has focused on such attention-driven effects (Droulers & Adil, 2015; Hutton & Nolte, 2011; Q. Wang et al., 2018), particularly in print ads where gaze and product information are shown simultaneously.

However, gaze direction can also have motivational consequences which have largely been overlooked in the advertising literature. Eye gaze not only orients viewers' attention but also motivates people to convey the meaning of intentions to interaction and demands of reactions (Adams & Kleck, 2003; Kleinke, 1986). For example, consider how students react to the direct gaze of a teacher. Students feel nervous due to the pressure to show expected behaviors (McIntyre, Mulder, & Mainhard, 2020). Also, if you find your friend directly looking at you, you may try to adjust your behaviors to comply with his or her expectations for you. Direct gaze signals an expectation of reactions. In spite of the motivational consequences, prior research has focused on attentional consequences of gaze. The attentional explanation investigates mainly eye fixation of viewers and product memory. Also, this perspective only assumes an averted gaze to be toward the target product even though a model in an advertisement can look at any direction beyond the target product (e.g., the right image in Figure B1). What if a model directly looks at viewers or looks away from viewers (not looking at the target product as well), how will it affect a viewer's motivation to respond to the ad (e.g., click the ad)?

### 2.1.2. Purpose of the Study

The purpose of the research is to understand the effect of gaze direction on ad effectiveness from the motivational perspective. Motivational aspects are particularly relevant to direct advertising that aims to prompt an immediate response (e.g., click) through a call-to-action button (e.g., click here, buy now, and get a free quote). Drawing from the literature on gaze and social psychology, I expected that when consumers found a direct gaze cue compared to averted gaze in an advertisement, they would be more likely to click an ad. This would occur because direct gaze which implied a demand to respond make people more aroused than averted gaze. According to Zajonc's social facilitation theory, high arousal produced by social presence drives actions and increased performances (Zajonc, 1965). I thus expected that high arousal from direct (vs. averted) gaze would result in a greater click response.

I conducted three studies to test the hypothesis. However, unfortunately, I could not find the hypothesized effects of gaze direction on ad responses. Direct (vs. averted) gaze did not increase the viewers' ad click and arousal. However, although it was not theorized, some subsequent exploratory evidence suggests a role of personality. Extroverts tended to favor advertisements featuring models with direct gaze over averted gazes, while introverts tended to favor the opposite. Therefore, a model's gaze direction does not have a general motivational effect on advertisement responses, but it is possible that gaze direction has a more nuanced effect, highly dependent on the context and viewer's characteristics.

### 2.1.3. Contribution

Although the prediction was not supported in the current research, there are several implications. First, this research will contribute to the literature on advertising and gaze by investigating the motivational effects of eye gaze. Unlike previous research showing an

attentional role of gaze on memory and ad attitude (Adil et al., 2018; Hutton & Nolte, 2011), this focuses on whether gaze motivates viewers' to respond to an ad.

Second, this study adds to the non-verbal communication literature. Previous research investigated the effects of non-verbal cues such as smile (Wang, Mao, Li, & Liu, 2017) and touch (Lynn, Le, & Sherwyn, 1998) in marketing communication. The current research adds to the literature by investigating the effects of gaze direction in advertising.

Third, this research adds to the literature on social psychology. In social interaction, the direct gaze is often associated with positive outcomes. This research suggests that unlike in the social interaction, the effect of direct gaze is not salient in an advertisement.

Fourth, this research will enhance the understanding of the gaze effect by suggesting a potential boundary condition. Although it was not hypothesized in the current research, a viewer's personality (i.e., introversion) moderated the effect of gaze direction on ad responses such that extroverts show a higher willingness to react to an advertisement featuring a direct gaze, but not for introverts. Practically, this finding will offer implications about displaying a model's gaze for certain targets. When a company targets extroverts than introverts, portraying a model's direct (vs. averted) gaze will be more effective in prompting their response to the ad.

#### 2.1.4. Organization of the Dissertation

The rest of the paper consists of three parts. First, previous literature on gaze is reviewed to develop a theoretical framework. Specifically, I will review the literature on the meaning of gaze and attentional and motivational consequences of gaze. I then suggest two hypotheses about the effect of gaze direction on ad responses and the mediating role of arousal. I present three studies to test the suggested hypotheses. However, studies failed to reject a null hypothesis about the effect of gaze direction on ad responses. I will discuss the results of the study and suggest future directions.

## 2.2. LITERATURE REVIEW

### 2.2.1. Meaning of Gaze

Gaze means an act of seeing. In social situations, the gaze is typically classified into two types—a direct gaze and an averted gaze. A direct gaze refers to an individual looking at viewers directly, while an averted gaze refers to an individual’s looking away from the viewers (Argyle & Cook, 1976; Kleinke, 1986). In print advertisements, the averted gaze is more common (48%) than the direct gaze (33%; To & Patrick, 2020).

People are exceptionally sensitive to other’s gazes (Batki, Baron-Cohen, Wheelwright, Connellan, & Ahluwalia, 2000; Kleinke, 1986). Not surprisingly, people are skilled at distinguishing whether another person is directly looking at them or looking away from them. Even infants as young as two days old can distinguish a direct gaze from an averted gaze, looking significantly longer at direct gaze (Farroni, Csibra, Simion, & Johnson, 2002). Babies between 9 months and 19 months can discern that a direct gaze conveys a goal intention (Phillips, Baron-Cohen, & Rutter, 1992). The ability to detect and interpret gaze provides evolutionary advantages by signaling the presence of predators, foods, and potential mates (Kobayashi & Kohshima, 2001). Gaze also has aided social communications (Argyle & Cook, 1976). Both direct and averted gaze provides a way for individuals to communicate and make inferences about others (Batki et al., 2000; Driver IV et al., 1999) by indicating diverse information such as liking, competence, credibility, dominance, intimacy, and rewards (Kleinke, 1986). Knowing where others are looking at enables one to generate an appropriate behavioral response (Mason, Allam, & Brannick, 2007). Thus, people can quickly detect the gaze and react sensitively to others’ eyes. Especially, extroverts are more likely to see others’ eyes than introverts (Kleinke, 1986). Females feel more comfortable seeing others’ eyes than males (Argyle& Cook, 1976).

### 2.2.2. Attentional Consequences of Gaze Direction

The gaze direction influences the viewers' attention and information processing. A direct gaze tends to hold attention to the face and delays the detection of targets outside of the facial region (Senju & Hasegawa, 2005). Gaze also affects visual search, in particular, face recognition. People are faster to detect face or eyes with a direct gaze than those with an averted gaze (Senju, Hasegawa, & Tojo, 2005), and people can recognize another person's sex more accurately for direct than averted gazes (Macrae, Hood, Milne, Rowe, & Mason, 2002).

The attentional effects of gaze have been demonstrated in the context of marketing. In advertisements, the models' gaze influences the depth of cognitive processing. Advertisements in which the model gazes at the product increase attention to it and recall of its product (Droulers & Adil, 2015; Palcu et al., 2017; Sajjacholapunt & Ball, 2014). For instance, people looked at a product longer when a model's gaze is directed to a target product in a print ad (Hutton & Nolte, 2011). Brand categorization and recognition were more accurate when people saw magazine ads depicting a model who looked at a product instead of viewers (Droulers & Adil, 2015). Also, people's eyes had a longer fixation duration and more frequently looked at the product when a model looked at the product than viewers, leading to higher brand recognition and recall (Adil et al., 2018). The effect of a gaze towards the product was particularly strong when the model smiles (Wang et al., 2018).

### 2.2.3. Motivational Consequences of Gaze Direction

Gaze direction also has motivational consequences. Although direct gaze has a number of behavioral outcomes, they roughly fall into three categories: intimacy, scrutiny, and threats

(Kampe, Frith, Dolan, & Frith, 2001; Kleinke, 1986; Wang & Hamilton, 2014). Each of these outcomes implies the need for the viewer to act.

*Intimacy.* Direct gaze often communicates intimacy, involvement, and informality (Burgoon, Manusov, Mineo, & Hale, 1985; Kleinke, 1986; Patterson, 1982). Faces with a direct gaze are rated as more intimate and likable than those with an averted gaze (Kleinke & Pohlen, 1971), consequently increasing compliance (Segrin, 1993). This is consistent with Patterson's (1976) arousal model of interpersonal intimacy which proposes that eye contact increases intimacy toward another person and causes a noticeable change in the viewer's arousal. Similarly, a direct gaze facilitates social engagement. In one study, participants tended to mimic an actress's hand movements more when she adopted a direct gaze than when she used an averted gaze (Wang & Hamilton, 2014). Direct gaze was found to prime positive affective states (Chen, Peltola, Ranta, & Hietanen, 2016).

*Social Scrutiny.* In other contexts, a direct gaze induces the feeling of being watched, increasing normative behaviors. For example, people donated more money to a charity when the collector gazed at donors rather than at the collecting tin (Bull & Gibson-Robinson, 1981). In a dictator game, where participants choose whether to share money with other participants, the amount shared was larger when images of eyes were simply displayed on a computer screen (vs. no eyes) (Haley & Fessler, 2005). However, this effect appears to be temporary. When participants were exposed to a direct gaze for a sustained period, they shared less money than when they were briefly exposed to a direct gaze (Sparks & Barclay, 2013).

*Threats.* A direct gaze can also be linked to threats or assertion of dominance. For example, a prolonged gaze often produces discomfort, leading participants to distance themselves from the gazer or look away (Ellsworth & Langer, 1976; Greenbaum & Rosenfeld, 1978). Especially, in situations with aggression and anger, a direct gaze is more considered threatening

while averted gaze often communicates submissiveness and appeasement (Ellsworth & Carlsmith, 1973).

*Direct gaze and arousal.* Regardless of how a viewer interprets a direct gaze—intimacy, scrutiny, threat, or other meaning—it consistently implies social interaction and heightened arousal (Kleinke, 1986; Marshall & Zimbardo, 1979; Patterson, 1976). Compared to the averted gaze, the direct gaze is often a non-verbal invitation to further social contact and reciprocity. A direct gaze indicates the start (or continuance) of an interaction, signaling the expectation of a response, whereas an averted gaze implies the attention directed elsewhere without the expectation of an immediate response. Thus, direct gaze arouses people more than averted gaze.

Consistent with this theorizing, various physiological and neural research indicates that direct gaze heightens levels of arousal. Compared to an averted gaze, a direct gaze increases skin conductance responses (Helminen, Kaasinen, & Hietanen, 2011), heart rate (Kleinke & Pohlen, 1971), and pupil diameter (Wang et al., 2018). Furthermore, brain imaging reveals that direct gaze activates cerebral regions associated with activation motivation such as the left-sided frontal cortex (Hietanen, Leppänen, Peltola, Linna-aho, & Ruuhiala, 2008), dopaminergic regions (Kampe et al., 2001), and the striatal reward systems (Kampe et al., 2001).

The previous literature suggests that direct gaze activates arousal and motivational tendencies. Although interpretations of gaze direction may be contingent on context, a direct gaze relative to averted gaze functions as initiation of interaction and demands a response, producing a viewer's high arousal and activation tendency. Arousal plays an important role in motivating behaviors (Zajonc, 1965). According to Zajonc's social facilitation theory, the arousal that is produced by the presence of others enhances the likelihood that the individuals will take an action that they are most likely to emit in a given situation (Zajonc, 1965). Furthermore, Brehm & Self (1989) suggested that the momentary magnitude of arousal influences behavioral motives.



Therefore, compared to the averted gaze, the direct gaze is likely to temporarily increase viewers' arousal and activation tendency.

In the context of marketing, activation tendency is relevant to direct response marketing and interactive advertisements. Unlike branding advertisements, which are designed to convey information and build a connection with consumers, the main purpose of interactive and direct advertising is to encourage immediate reactions such as clicking, participating in an instantaneous event, or purchasing a product immediately. With the rise in mobile media and the Internet, direct and interactive advertising has been growing in popularity (Belanche, Flavián, & Pérez-Rueda, 2017). In these ads, attracting consumers and motivating them to immediately react to the ads are essential for the ad's effectiveness. Models are often featured in these ads; thus, a better understanding of the visual cues which prove effective in terms of motivating consumers to react to the ads is critical. In the present research, it is proposed that using a direct gaze will facilitate consumers' response to the ads because of a high arousal level.

#### 2.2.4. Research Hypotheses

Based on the findings discussed in previous research, it is proposed that in an advertisement, a model's gaze direction will influence a consumer's tendency to follow a behavioral request (e.g., click here, buy now, and watch a trailer). The effect of gaze on ad response to comply with a request in an ad will be mediated by the level of arousal because the arousal from human presence can facilitate action.

H1. Viewers will be more motivated to respond to a request following a direct gaze than an averted gaze.

H2. The effect of gaze direction on motivation to respond to ads will be mediated by the level of arousal.

### 2.2.5. Study Overview

Three studies were conducted to test the hypotheses. Study 1 aims to provide initial evidence that direct (vs. averted) gaze affects responses toward a banner ad with a call-to-action message. Study 2 explores the underlying mechanisms of arousal by using physiological responses. Last, study 3 examines the effects of gaze direction within a video ad format. Briefly, study 1 found a non-significant effect on click and a marginal effect on willingness to react to an ad. In studies 2 and 3, there were no significant effects of gaze directions on arousal and ad responses.

Table B1. Study Overview

	Purpose	Data collection	Design	Stimuli
Study 1	To test the effect of gaze direction on click and willingness to watch a show	OSU behavioral lab (n= 77)	2 (gaze direction: direct vs. averted)	TV show banner ad
Study 2	To examine the mediating role of physiological arousal	OSU behavioral lab (n= 71)	2 (gaze direction: direct vs. averted)	TV show banner ad
Study 3	To examine the effect of gaze direction by using a different ad format (video ad)	OSU behavioral lab/ mTurk (n= 338)	2 (gaze direction: direct vs. averted)	Video ad of a toilet paper

### 2.3. STUDY 1

The main purpose of study 1 is to examine how the gaze direction influences consumers' responses to an advertisement's request (H1). Two versions of a banner advertisement were created about a real TV show which depicted a model looking at the viewer or looking away from the viewer. The ads included a call-to-action message "Watch the trailer" and participants' clicks and willingness to watch were measured. It is predicted that participants would be more likely to click the ad and show a higher willingness to watch the show in the direct gaze condition than in the averted gaze condition.

#### Material and methods

*Participants and design.* Seventy-seven undergraduate students at Oklahoma State University (49.3% female, age range = 18 – 24,  $M_{\text{age}} = 20$ ) participated in the study for an exchange of course credit. The study was a part of a marketing research session conducted at the OSU behavioral lab. Participants were randomly assigned to one of two conditions (gaze direction: direct vs averted).

*Procedure.* Participants were told that they would be participating in an ad design study. They were shown a series of five banner advertisements including four control ads and one target ad in the following order: a home rent ad, a sneaker ad, a travel ad, an online course ad, and a TV show (target ad; see Figure B2). The target ad was about a real TV show called "Finding Joy," an Irish comedy television series. This show was chosen because "Finding Joy" is relatively unknown to the U.S. but spoken in English. More importantly, a focal point of its poster ad features the main character's face, making her eyes prominent. In the direct gaze condition, the model's gaze was directed toward viewers. In the averted gaze condition, the same model's gaze was directed away from the viewers. Except for the gaze direction, other features were the same. Both ads included a call-to-action message "Watch the trailer" and all banner ads were made to be

clickable so it could track whether participants clicked the ad or not. When participants clicked the banner ad, a landing page presented brief information about the product. Participants were subsequently asked two items of willingness to watch (e.g., “When you look at this banner ad, how likely are you to watch the TV show Finding Joy?”;  $a = .93$ ) on nine-point scales. Also, given that a model’s attractiveness (Trampe, Diederik, Frans, & Henriette, 2010) and overall interests in the product can enhance the ad responses, these variables were measured to control for their effects. The model attractiveness was measured with three items (e.g., attractive, appealing,  $a = .97$ ), and a general interest in watching TV was measured with an item (i.e., In general, how interested are you in watching TV shows?). Finally, demographics and a viewer’s personality (i.e., “Are you an extrovert or an introvert?”; 1 = I am an extrovert; 9 = I am an introvert) were measured, and after debriefing, the study ended. See Appendix F for the methodological details.

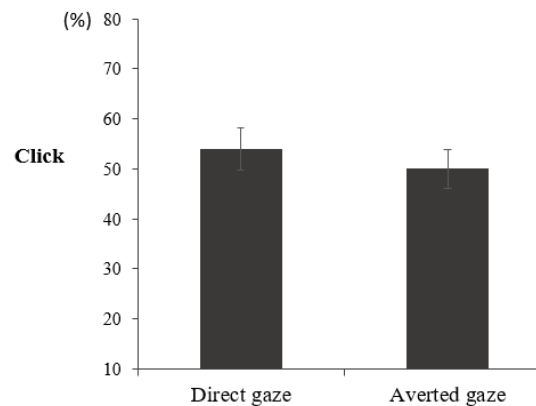
Figure B2. Advertisements with direct (left) and averted (right) gaze



## Results

*Click.* A binary logistic regression with a gaze direction as an independent variable and a click (0 = no click; 1 = click) as a dependent variable was estimated. Despite the prediction that direct gaze will increase a click likelihood more than seeing an averted gaze, the effect was not significant (Wald  $\chi^2(1) = .14, p = .71$ ). While 54% of participants in the direct gaze clicked the ad, 50% of participants in the averted gaze condition clicked the ad. The difference was not significantly different.

Figure B3. Gaze Direction and Click (Study 1)

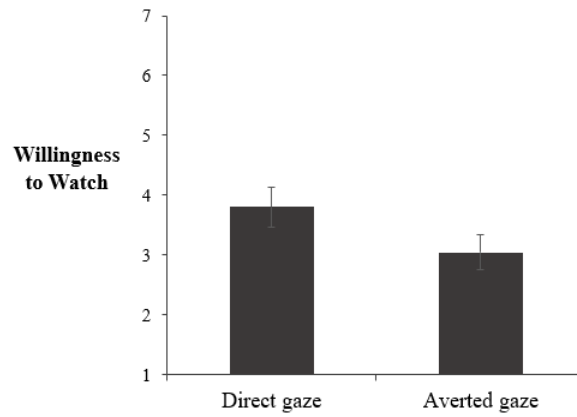


Error bars indicate standard error

*Willingness to Watch.* It was predicted that participants in the direct gaze condition would show a higher willingness to watch the show than those in the averted gaze condition. A t-test revealed a marginally significant effect of a model's gaze direction on the willingness to watch the show ( $t(1, 74) = -1.68, p = .097, d\text{-score} = .39$ ).<sup>1</sup> Participants who saw a model's direct gaze ( $M = 3.80, SE = .33$ ) showed a higher willingness to watch the show than those who saw a model's averted gaze ( $M = 3.04, SE = .29$ ).

<sup>1</sup> After controlling for model attractiveness and general interest in the show, a one-way ANOVA revealed a marginally significant effect of a model's gaze direction on the willingness to watch the show ( $F(1, 72) = 2.91, p = .092, \eta_p^2 = .04$ ). The main effect of model's attractiveness was significant ( $F(1, 72) = 6.50, p = .01$ ) but no main effect of general interest in TV watching ( $F(1, 72) = 0.12, p = .73$ )

Figure B4. Gaze Direction and Willingness to Watch (Study 1)



Error bars indicate standard error

## Discussion

Study 1 explored how gaze direction influences ad responses. However, inconsistent with the expectation, no main effect and only marginal effect of gaze direction were found on ad responses. Direct (vs. averted) gaze did not enhance the viewer's click behavior and willingness to watch a show.

## 2.4. STUDY 2.

The purpose of study 2 is to examine the effect of gaze direction and to examine the mediating role of arousal by measuring physiological responses. Arousal as an energizing response is associated with the heightened nervous system such as high heart rate and skin conductance (Knight, Guthrie, Page, & Fabes, 2002). In study 2, physiological responses of arousal (i.e., heart rate, skin conductance) were measured while participants were shown to the ads displaying either a direct gaze or averted gaze of a model. The prediction was that a high arousal level elicited by a direct gaze (vs. an averted gaze) would lead to an increased click and willingness to watch a show.

### Material and methods

*Participants and design.* Data were collected at OSU's behavioral lab from seventy-nine students in exchange for extra credit. Participants were randomly assigned to one of two conditions (gaze direction: direct vs. averted). Due to incomplete data and erroneous measures of physiological arousals, eight participants were excluded from the data, resulting in a final sample of seventy-one participants (35.2% females, age range = 18 – 28,  $M_{\text{age}} = 20$ ).

*Procedure.* When participants arrived at a lab, they were guided to sit in a computer station for a biometrics consumer study to understand how consumers navigate web banner advertisements. All the ad stimuli were the same as in study 1, except that it involved a physiological test device called "Alive Pioneer." Before ad stimuli were shown on the screen, participants attached two finger sensors over their fingernails with a guidance of a lab assistant. Once the device was set, five ads including four control ads and a target ad were separately displayed on the screen. The Alive Pioneer finger sensors recorded participants' heart rate and skin conductance every 0.3 seconds while participants viewed the ads. Like study 1, all banner

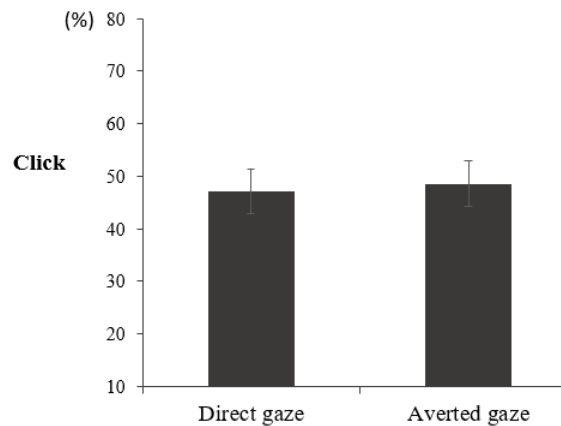


ads were clickable so it recorded whether or not participants clicked the ad. After participants saw all banner ads, they detached the device with a help of a lab assistant and they were asked questions about two items of willingness to watch ( $\alpha = .92$ ), three items of model attractiveness ( $\alpha = .97$ ), an item of interest in watching a TV show <sup>2</sup>, and demographics. See Appendix G for the methodological details.

## Results

*Click.* A binary logistic regression analysis on click (0 = no click; 1 = click) with gaze direction (0 = averted; 1 = direct gaze) as an independent variable was conducted. It was expected that participants in the direct gaze condition would be more likely to click the ad than those in the averted gaze condition. However, the results failed to support this. There was no effect of gaze direction on click (Wald  $\chi^2(1) = .01, p = .91$ ). The percentage of those who clicked the ad in the direct gaze condition (47.2 %) did not differ from that in the averted gaze condition (48.6 %).

Figure B5. Gaze direction and Click (Study 2)



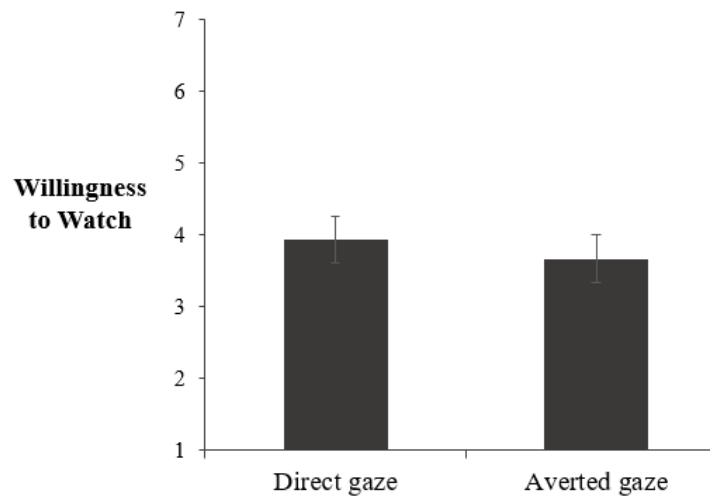
Error bars indicate standard error

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<sup>2</sup> Controlling for the effects of model attractiveness and general interests did not change the results. Specifically, after controlling the variables, a binary logistic regression showed no effect on click of gaze (Wald  $\chi^2(1) = .09, p = .76$ ) and a one-way ANOVA on willingness to watch revealed no significant effect of gaze direction ( $F(1, 67) = 0.06, p = .81$ ).

*Willingness to Watch.* Willingness to watch was expected to be higher for the direct gaze than the averted gaze condition. However, a t-test revealed no significant effect of gaze direction ( $t(1, 69) = -0.56, p = .58$ ). There was no difference in the willingness to watch a show between direct gaze ( $M = 3.92, SE = .32$ ) and averted gaze ( $M = 3.66, SE = .34$ ).

Figure B6. Gaze Direction and Willingness to Watch (Study 2)

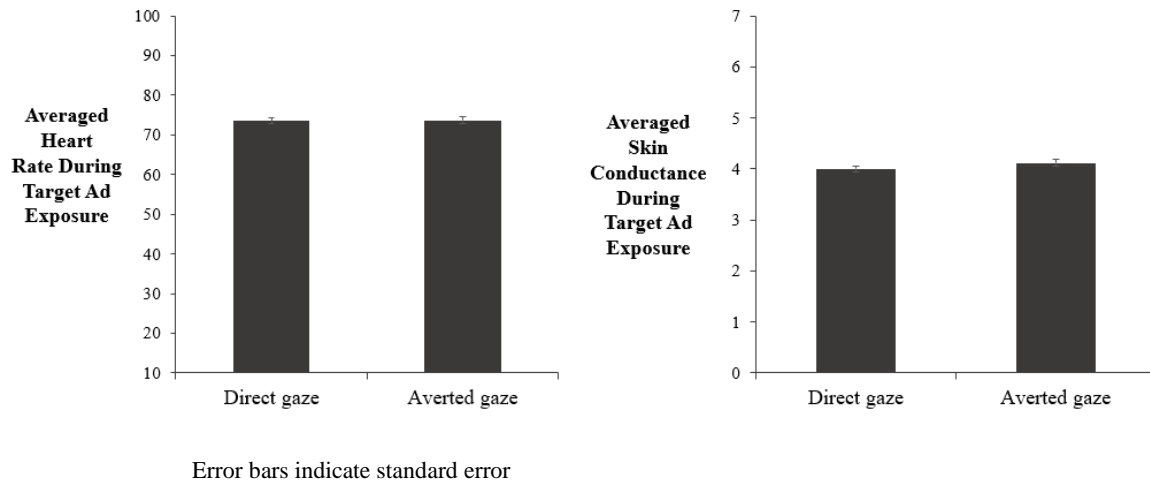


Error bars indicate standard error

*Arousal.* Each heart rate and skin conductance during the exposure to the target ad was averaged to indicate the level of physiological arousal. The averaged heart rate and skin conductance levels were expected to be higher in the direct gaze condition than the averted gaze condition. While controlling for baseline heart rate and skin conductance (i.e., the averaged heart rates and skin conductance during the exposure to the control ads), one-way ANOVAs on the heart rate and skin conductance were estimated respectively. However, results revealed no significant effects of gaze direction on heart rate ( $F(1, 67) = 0.05, p = .83$ ). The averaged heart rate in the direct gaze condition ( $M = 73.51, SE = .81$ ) was not higher than that in the averted gaze condition ( $M = 73.76, SE = .82$ ). Also, there was no effect of gaze direction on skin conductance ( $F(1, 67) =$

1.72,  $p = .19$ ). The averaged skin conductance in the direct gaze condition ( $M = 4.00$ ,  $SE = .06$ ) did not differ from that in the averted gaze condition ( $M = 4.12$ ,  $SE = .06$ ).

Figure B7. Gaze Direction and Physiological Arousal (Study 2)



*Mediation of Arousal.* The mediating role of arousal was tested using PROCESS Model 4 by entering gaze direction as an independent variable (X), heart rate and skin conductance as mediators (M), and click and willingness to watch a show as dependent variables (Y) respectively with 5,000 bootstrapped replications. The models did not support the mediation. After controlling for the effects of baseline heart rate and skin conductance, results revealed that the gaze direction was not associated with heart rate ( $b = -.25$ ,  $SE = 1.16$ ,  $t = -.21$ ,  $p = .83$ ) and skin conductance ( $b = -.12$ ,  $SE = .09$ ,  $t = 1.31$ ,  $p = .19$ ). There was a significant main effect on click of heart rate ( $b = .15$ ,  $SE = .07$ ,  $t = 2.10$ ,  $p = .04$ ) and no main effect of skin conductance ( $b = -.36$ ,  $SE = .73$ ,  $t = -.49$ ,  $p = .62$ ) on click. The indirect effects on click through heart rate ( $b = -.04$ ,  $SE = .25$ , 95% CI = [-.409, .641]) and skin conductance ( $b = .04$ ,  $SE = .16$ , 95% CI = [-.204, .499]) were not significant. Likewise, the willingness to watch a show were not associated with heart rate ( $b = .02$ ,  $SE = .05$ ,  $t = .29$ ,  $p = .77$ ) and skin conductance ( $b = .31$ ,  $SE = .68$ ,  $t = .47$ ,  $p = .64$ ). The indirect effects on willingness to watch a show through heart rate ( $b = -.003$ ,  $SE = .06$ , 95% CI =

[-.134, .132]) and skin conductance ( $b = -.04$ ,  $SE = .12$ ,  $95\% CI = [-.385, .119]$ ) were not significant.

Figure B8a. Mediation analysis of Physiological Arousal on Click (Study 2)

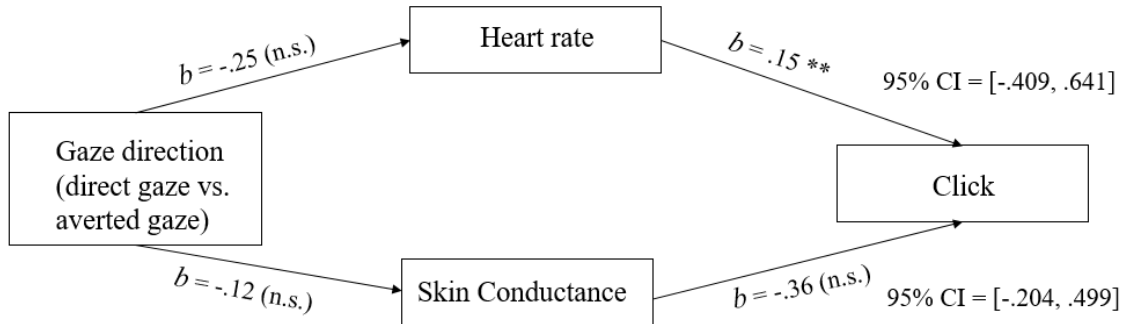
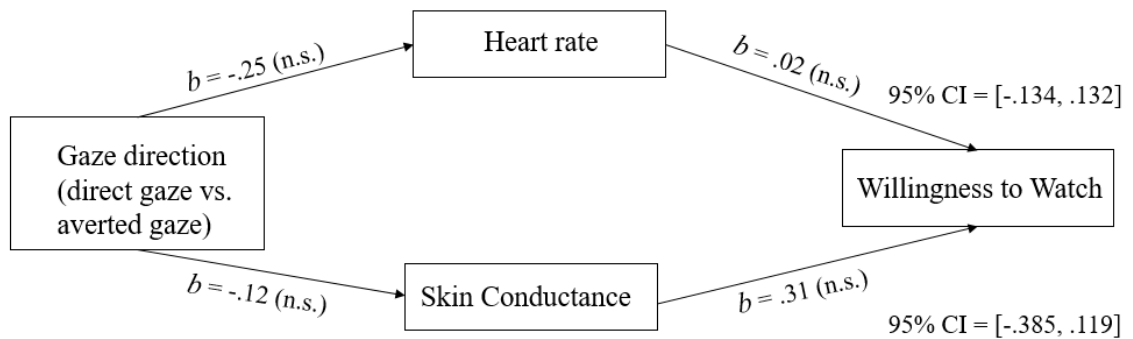


Figure B8b. Mediation analysis of Physiological Arousal on Willingness to Watch (Study 2)



Note:  $p < .001$  \*\*\*,  $p < .05$  \*\*

## Discussion

Study 2 failed to find the effect of gaze direction on click behavior and willingness to watch a show. The gaze direction also did not affect the physiological arousal levels (heart rate and skin conductance), showing no mediation effect of arousal. Overall, studies 1 and 2 did not support the hypothesis about the effect of gaze direction on ad responses. A possible reason for the non-statistically significant results might be that a static image banner ad has nuanced effects

on arousal levels and responses to the ad. Recently, consumers are becoming more used to watching a video ad than a static image ad. A video ad tends to engage viewers more and also shows diverse facial cues, making eye cues more important. Thus, a video ad rather than an image banner ad will provide a more effective platform to test the gaze effect in advertising.

## 2.5. STUDY 3.

Study 3 explores the effect of gaze direction by using a different ad format; a video ad rather than a static image ad. Two versions of video ads of a fictitious brand were created; one version displays a model directly looking at viewers and another version displays a model looking away from the viewers. After watching a video ad, click and purchase intention were measured. A video ad showing a model's direct gaze was predicted to lead to a higher click and purchase intention than watching an ad displaying a model's averted gaze.

### Material and methods

*Participants and design.* Three hundred forty-eight participants were recruited from two sources; OSU behavioral lab ( $n = 248$ , 65.3% females,  $M_{age} = 21$ ) in exchange for extra credits and Mturk ( $n = 100$ , 46.0% females,  $M_{age} = 41$ ) in exchange for monetary payment. Ten participants were excluded due to incomplete data and duplicate participation, remaining three hundred thirty-eight participants (60.9% females, age range = 18-70,  $M_{age} = 27$ ). All participants were randomly assigned to one of two conditions (gaze direction: direct vs averted). Since there was no difference in the main results by the source of data, data were combined for the analysis.

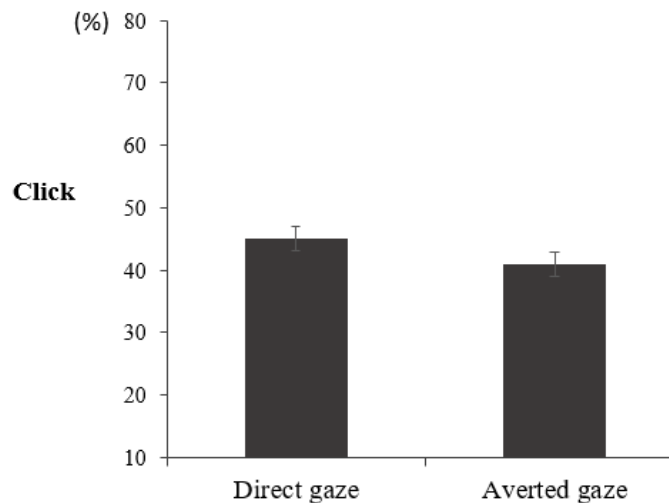
*Procedure.* The cover story informed participants that they were participating in a study to evaluate a video advertisement. First of all, to check if participants were in the proper setting to watch a video ad, a soundcheck task was conducted by having participants find a word they

heard. When they failed on the soundcheck task, they were redirected to the same task until they indicated the right answer. Once the soundcheck task successfully proceeded, participants were shown one of two video ads about a fictitious toilet paper brand “Soft Cloud” (Appendix H). The toilet paper was chosen because it is relevant to participants regardless of gender and age. Both ads involved a female model who spoke about the main features of the products (i.e., softness, natural ingredients). The only difference between the ads was the way that the model looked at the viewers. In the direct gaze condition, the model talked about the product while directly looking at the viewer. In contrast, the ad in the averted gaze condition showed the same model talking about the product while looking away from the viewer. The ads were created by shooting the same scene with two cameras at different positions. The camera shooting the direct gaze condition was placed directly in front of the model while the camera shooting the averted gaze condition was 15-degree side angle. By shooting the same model at different angles, other factors such as ad length (1 minute), model’s facial expression, background, sound, and voice were controlled. After watching one version of the ads, participants were asked about their click intention (i.e., “After watching the ad, would you click the ad to get the free sample? Yes/No), two items of purchase intention (e.g., “How likely are you to buy Soft Cloud toilet paper?”;  $a = .90$ ), and six items of semantic differential items of arousal (e.g., relaxed-stimulated, calm-excited;  $a = .88$ ). They were also asked questions of three items of a model’s attractiveness ( $a = .97$ ), and an item of general interest in buying toilet paper (Appendix H). All items were on nine-point items. Predictions were that participants in the direct gaze condition would show a higher click and purchase intention than those in the averted gaze condition. This effect would be mediated by an arousal level. Across all analyses, the factors of the model’s attractiveness and general interests in buying toilet products were controlled.

## Results

*Click.* A binary logistic regression on click (0 = no click; 1 = click) with a gaze direction as an independent variable (0 = averted gaze; 1 = direct gaze) was used to test the gaze effect. Click was expected to be higher in the direct gaze condition than in the averted gaze condition. However, results yielded a non-significant effect by gaze direction (Wald  $\chi^2(1) = .57, p = .45$ ).<sup>3</sup> In the direct gaze condition, 45.2% among participants indicated they would click the ad, whereas 41.2 % in the averted gaze condition indicated they would click the ad. There was no statistical difference in click between the conditions.

Figure B9. Gaze Direction and Click (Study 3)



Error bars indicate standard error

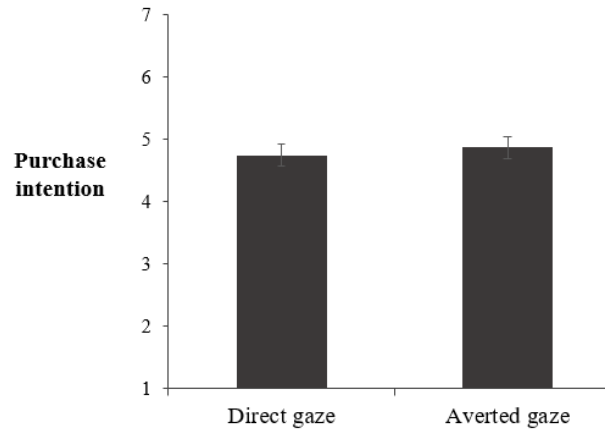
*Purchase Intention.* Purchase intention was expected to be higher for the direct gaze than the averted gaze condition. However, the results failed to support the prediction. A t-test results revealed no significant effect of gaze direction ( $t(1, 336) = 0.50, p = .62$ ). The purchase intention

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<sup>3</sup> Controlling for the effects of model attractiveness and general interest in buying a toilet paper did not change the results. Regardless of the controlling the effects, there were no effects of gaze direction on click (Wald  $\chi^2(1) = .40, p = .53$ ), purchase intention ( $F(1, 334) = 1.19, p = .28$ ), and arousal ( $F(1, 334) = 1.81, p = .18$ ).

in the direct gaze condition ( $M = 4.74, SE = .18$ ) was not higher than that in the averted gaze condition ( $M = 4.86, SE = .18$ ).

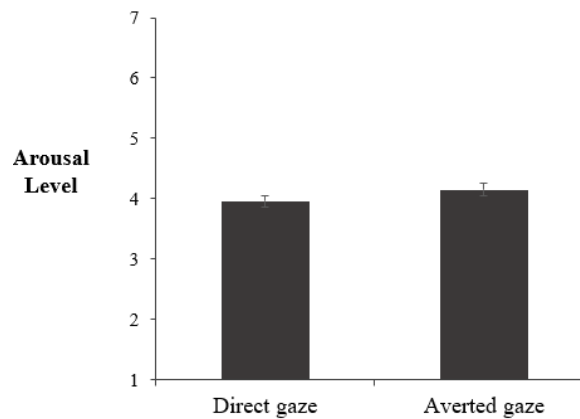
Figure B10. Gaze Direction and Purchase Intention (Study 3)



Error bars indicate standard error

*Arousal.* A *t*-test on arousal level was estimated. Although the arousal was expected to be higher for the direct gaze than the averted gaze condition, there was no significant effect of gaze direction on arousal level ( $t(1, 336) = 0.87, p = .39$ ). The arousal levels in the direct gaze condition ( $M = 3.98, SE = .12$ ) and the averted gaze condition ( $M = 4.13, SE = .12$ ) were not statistically different.

Figure B11. Gaze Direction and Arousal (Study 3)

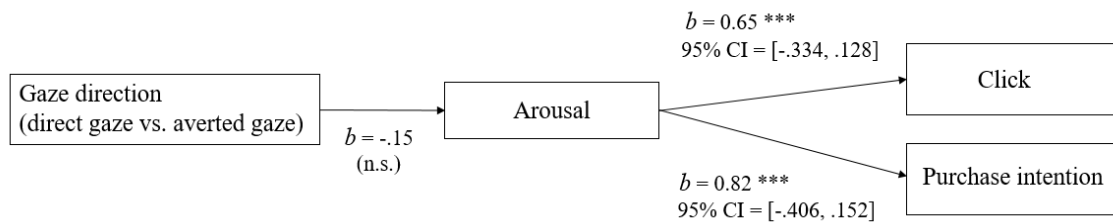


Error bars indicate standard error



*Mediation of Arousal.* The mediating role of arousal was tested using PROCESS Model 4 with 5,000 bootstrapped resamples (Hayes 2018). A model was run with direct gaze (X), arousal (M), and click (Y). However, there was no mediation effect of arousal. Results revealed that arousal was not associated with gaze direction ( $b = -.15$ ,  $SE = .17$ ,  $t = -.87$ ,  $p = .39$ ). After entering the gaze direction, arousal was significantly associated with click ( $b = .65$ ,  $SE = .09$ ,  $t = 6.99$ ,  $p < .001$ ). The indirect path between gaze direction and click through arousal was not significant ( $b = -.10$ ,  $SE = .12$ , 95% CI = [-.334, .128]). Furthermore, the same model was run on purchase intention. Results failed to find supporting evidence of the hypothesis. The gaze direction was not associated with arousal ( $b = -.15$ ,  $SE = .17$ ,  $t = -.87$ ,  $p = .39$ ) and arousal was significantly associated with purchase intention ( $b = .82$ ,  $SE = .07$ ,  $t = 11.98$ ,  $p < .001$ ). There was no significant indirect effect of arousal between gaze direction and purchase intention ( $b = -.12$ ,  $SE = .14$ , 95% CI = [-.406, .152]). Thus, the results did not support the mediation effect of arousal.

Figure B12. Mediation Analysis of Arousal (Study 3)



Note:  $p < .001$  \*\*\*,  $p < .05$  \*\*

## Discussion

Although study 3 used a different advertisement format (i.e., video ad), it showed no effect of gaze direction. Inconsistent with the hypotheses, results suggest that direct (vs. averted) gaze does not increase the click, purchase intention, and arousal levels. It demonstrates that

regardless of ad formats, gaze direction may be not a sufficient visual cue to affect consumers' motivation to respond to the advertisement.

## 2.6. GENERAL DISCUSSION

Eyes are of central importance in the non-verbal communications of humans (Argyle & Cook, 1976). In this dissertation, I focus on an advertisement model's eye gaze to understand how gaze direction influences consumer's ad responses. However, across three studies, I found no supporting evidence about the effects of gaze direction on ad responses. Gaze direction did not influence a viewer's click, willingness to respond to the ad, and physiological arousal. Overall, the findings suggest that merely displaying a gaze direction has no sufficient motivational consequences in an advertisement.

However, the gaze direction effect may depend on the viewer's characteristics. Although it was not hypothesized in this dissertation, the effects of gaze direction varied by viewer's introversion. A combined data of study 1 and study 2 showed a significant interaction between gaze direction and introversion ( $b = -.36$ ,  $SE = .13$ ,  $t(141) = -2.88$ ,  $p = .005$ ). To further explore the interaction, I run a floodlight analysis with the Johnson-Neyman technique (Spiller, Fitzsimons, Lynch, & McClelland, 2013). For extroverts—participants who scored lower than 4.00 on the introversion scale (54.42 % of respondents)—the ad depicting a direct gaze led to a higher willingness to watch the show than the ad depicting an averted gaze (BJN = 0.59,  $SE = .30$ ,  $t = 1.98$ ,  $p = .05$ ). Similar patterns were found in study 3 using a video advertisement. There was a marginally significant interaction between introversion and gaze direction on purchase intention ( $b = -.14$ ,  $SE = .08$ ,  $t = -1.79$ ,  $p = .07$ ). For introverts—those above 6.78 on the introversion scale (29.59% of respondents)—the direct gaze ad decreased purchase intention more than the averted gaze ad (BJN = -.48,  $SE = .24$ ,  $t = 1.97$ ,  $p = .05$ ). This suggests that introverts and extroverts respond differently to gaze direction in advertising. Click behavior was not affected by a viewer's introversion. These findings imply that the gaze in advertising has more nuanced effects and may depend on the viewer's characteristics. Implications and limitations of this research will be discussed as followed.

### 2.6.1. THEORETICAL CONTRIBUTION

The current research provides several theoretical implications. First, this research contributes to prior research by focusing on the motivational effects of eye gaze. Most previous studies have analyzed the attention and memory effect of gaze by measuring how long people's gaze dwells on product information and how much people recall it (Adil et al., 2018; Palcu et al., 2017; Wang & Hamilton, 2014). From this view, the model's averted gaze (i.e., looking at product) is more effective to direct gaze (Hutton & Nolte, 2011). However, the current research centers around a different perspective that direct gaze may motivate consumers to comply with behavioral requests in an ad (e.g., watch the show, click here) given that direct gaze implies a demand for reactions arousing people more. Although more research should be conducted to explore in which contexts direct gaze or averted gaze motivate viewers effectively, the current research will expand the views on understanding gaze directions in the context of marketing communications.

Second, this study adds to non-verbal communication literature. Previous literature found effects of non-verbal cues such as smile (Wang et al., 2017), touch (Lynn et al., 1998), camera angle (Yang, Zhang, & Peracchio, 2010), and presence of face (Orth, Cornwell, Ohlhoff, & Naber, 2017) in marketing communication. The current research investigates whether and how eyes, an important facial cue, impact consumer responses to advertising.

Third, this research adds to the literature on social psychology. In social interaction, the direct gaze is often associated with positive outcomes such as credibility (Burgoon et al., 1985), competence (Hietanen et al., 2018), and physical attractiveness (Mason, Tatkov, & Macrae, 2005). However, our finding suggests that unlike in interpersonal interaction, the positive effect of direct gaze is not salient in marketing communication.

Last, this research provides a potential boundary condition about the gaze effect. I found that an extrovert prefers an ad showing direct gaze, whereas an introvert prefers an ad showing averted gaze. Given that personality is associated with visual interactions (Iizuka, 1992), a viewer's introversion can affect responses to a gaze direction. For example, extroverts directly gaze longer at another person's eyes than introverts (Iizuka, 1992; Wiens, Harper, & Matarazzo, 1980). Beyond the social interaction, the current research shows that even in marketing communication such as watching a print ad and video ad, consumer's introversion can play a role in reacting to eye gaze.

#### 2.6.2. PRACTICAL IMPLICATION

Ad design is always an important issue for marketers. When an advertisement features a model's face, marketers often wonder whether gaze direction matters and which gaze direction will be more effective. The current research suggests that in general, gaze direction itself is not a game-changer. It does not affect ad clicks or immediate responses to the ad. However, marketers need to understand that consumers may react to the model's gaze cue differently depending on their personality. Extroverts are more positive to the direct gaze while introverts are more positive to the averted gaze. Therefore, marketers can use a model's gaze direction by considering the target consumer's personality. Related to this, micro-targeting based on consumer's personalities will be available with the use of predictive analytics. For example, extraversion can be predicted based on spending patterns; extraverts tend to make more dining and drinking purchases (Gladstone, Matz, & Lemaire, 2019). An analysis of 1.5 million people helped developing an algorithm to categorize people's Big 5 personalities such as introversion (Smith, 2018). Thus, for those who are categorized to be extroverts or introverts in data, a company may customize the ad design either displaying direct gaze or averted gaze.

### 2.6.3. LIMITATIONS AND FUTURE DIRECTIONS

Eyes can have different effects by individual features and contextual factors. Future research can explore the effects of gaze in different paths. First, gaze perception will depend on consumers' personalities and social motivation. In this research, ad viewer's introversion was found to moderate the effects of gaze direction. An important question is why introverts and extroverts are different in reacting to gaze direction in an advertisement. This might be associated with the social meaning of gaze direction and social anxiety (Rutter, Morley, & Graham, 1972). Future research needs to investigate the interactions between gaze direction in ads and viewer's personalities. Also, given that gaze is an important social cue, social motivation can play a role in the effects of gaze direction. Thus, consumers' personality and sociality motivation may need to be investigated for understanding the effect of gaze.

Second, an advertisement's appeal may interact with the gaze cue (To & Patrick, 2020). Consumers prefer averted gaze to direct gaze for hedonic advertisements, but they prefer direct gaze for utilitarian advertisements. Yet, it is still unclear how specific emotional appeals (e.g., guilty, happy, angry, empathy, etc.) interact with gaze direction in advertisements. Are consumers more responsive to ads depicting guilty and angry in ads when it displays averted gaze or a direct gaze? Investigating the effects of gaze direction in a different emotional appeal will provide a deeper understanding of the gaze effects.

Third, the effect of gaze can vary by culture. The gaze has been used as different meanings in different cultures. Asian cultures are more reluctant to direct gaze than Western cultures (Blais, Jack, Scheepers, Fiset, & Caldara, 2008; Findlay & Gilchrist, 2003) because excessive eye contact may be considered rude. Some have speculated that this is due to the fact that in Asian cultures babies are carried on the mother's backs interfering with the early development of facial cues (Argyle & Cook 1976, 33p). Also, Blais et al. (2008) suggested that

when recognizing faces, Westerners who have analytic thinking styles focus on a single facial feature (especially eyes), while Asians who have holistic thinking styles focus on the region that would be optimal to integrate information holistically, in particular, on the center of the face (that is, on one's nose). Also, in other cultures, like the Tuareg of Africa who often wears headscarves leaving only the eyes uncovered, gaze may have a different meaning (Kret & De Gelder, 2012). Thus, encoding and decoding the gaze direction in advertisements may vary depending on the cultural background of consumers. Future research may explore the moderating effects of culture.

Fourth, future studies may also consider different shapes of eyes and their effect on consumers' responses. Ilicic, Baxter, & Kulczynski (2016) showed that when a model has clean limbal rings (dark annulus around the iris of the eye), it enhances one's perceived purity about the product, which in turn increases product trustworthiness and attitude toward the ad. This occurs because eye purity acts as a metaphorical representation of purity. Different shapes of eyes may have different impacts on consumer's interpretation of the environments. Thus, future studies can examine the effects of different shapes of eyes.

In conclusion, although this research could not provide a clear main effect of gaze direction, other evidence shows that eyes play a powerful role in human communication. Future study will be needed to understand whether an ad model's gaze direction actually influences consumers' ad responses and why and when it happens. I hope this research starts a deeper conversation about this topic.

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## APPENDICES

### APPENDICES FOR ESSAY 1

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## APPENDIX A: STUDY 1 METHODOLOGICAL DETAIL

### Initial pool of items for emotional and social loneliness

The following questions are about how you feel about your relationships. Please think about your current relationships and respond to each statement. (1 = strongly disagree, 9 = strongly agree)

- EL1 I wish I had someone to talk to about personal topics.
- EL2 I wish I had deeper relationships in my life.
- EL3 I wish I had a closer connection in my life.
- EL4 I wish I had a more intimate bond in my life.
- EL5 The bonds that I have with others are too weak. <sup>a</sup>
- EL6 I lack intimacy with another person. <sup>a</sup>
- SL1 I wish I had more people to socialize with.
- SL2 I wish I had more friends.
- SL3 I wish I had a bigger social circle.
- SL4 I wish my social circle included more people.
- SL5 The number of people that I know and hang out with is too small. <sup>a</sup>
- SL6 I have no friends to mingle with. <sup>a</sup>

<sup>a</sup> Items were removed in the final version of items

### Social integration

Please indicate to what extent each statement describes your current social relationships.  
(1 = strongly disagree, 9 = strongly agree)

- There are people who enjoy the same social activities I do.
- I feel part of a group of people who share my attitudes and beliefs.
- There is no one who shares my interests and concerns.
- There is no one who likes to do the things I do.

### Social activity

On average, how often have you done each of these things in your living settlement?  
(1 = never, 5 = at least once a week)

- visiting with friends
- visiting with relatives
- going to movies, concerts, or plays
- attending meetings
- going to classes or lectures

## **Attachment**

Please indicate to what extent each statement describes your current social relationships.  
(1 = strongly disagree, 9 = strongly agree)

- I feel that I do not have close personal relationships with other people.
- I have close relationships that provide me with a sense of emotional security and well-being.
- I feel a strong emotional bond with at least one other person.
- I lack a feeling of intimacy with another person.

## **Unidimensional closeness**

The next questions are about one of your current relationships. Please select one person that is a romantic partner, a friend, or a family member.

- Romantic partner
- Friend
- Family member

Please think about your relationship with this person while you respond to the following statements. (1 = strongly disagree, 9 = strongly agree)

- My relationship with \_\_\_\_\_ is close.
- When we are apart, I miss \_\_\_\_\_ a great deal.
- \_\_\_\_\_ and I disclose important personal things to each other.
- \_\_\_\_\_ and I have a strong connection.
- \_\_\_\_\_ and I want to spend time together.
- \_\_\_\_\_ is a priority in my life.
- \_\_\_\_\_ and I do a lot of things together.
- When I have free time I choose to spend it alone with \_\_\_\_\_.
- I think about \_\_\_\_\_ a lot.
- My relationship with \_\_\_\_\_ is important in my life.
- I consider \_\_\_\_\_ when making important decisions.

## **UCLA – Unidimensional Loneliness**

Please indicate your opinions. (1 = never, 5 = often)

- I feel in tune with the people around me.
- I lack companionship.
- There is no one I can turn to.
- I do not feel alone.
- I am an outgoing person.
- I feel left out.
- I feel isolated from others.

I can find companionship when I want to.  
I am unhappy being so withdrawn.  
People are around me but not with me.

### **Depression**

Please indicate how the following statements describe your feeling about your life.  
(1 = not at all true, 9 = very true)

I often feel downhearted and blue.  
I regularly feel like I have nothing to look forward to.  
I often feel that life is meaningless.  
I often feel like I am not worth much as a person.  
I have difficulty becoming enthusiastic about almost anything.  
I can't seem to experience any positive feelings at all.  
I find it difficult to work up the initiative to do things.

### **Negative emotion**

Indicate to what extent you feel this way right now.  
(1 = very slight or not at all, 5 = extremely)

Distressed  
Upset  
Guilty  
Scared  
Hostile  
Irritable  
Ashamed  
Nervous  
Jittery  
Afraid  
Bored  
Sad  
Anxious

## **APPENDIX B: STUDY 2 METHODOLOGICAL DETAIL**

### **Brand loyalty**

Please think about your recent brand purchases and indicate your answers below.  
(1 = strongly disagree, 9 = strongly agree)

I prefer one brand of most products I buy.  
I am willing to make an effort to search for my favorite brand.  
Usually, I care a lot about which particular brand I buy.

### **Brand assortment**

Please answer the following questions. (1 = strongly disagree, 9 = strongly agree)

I like being a customer of a wide assortment of brands.  
I'm interested in connecting with several brands.  
I prefer to be a customer of numerous brands.  
I like buying from different brands.  
It's nice when brands that I've never had a relationship with want me as a customer.  
When it comes to brands more options is better.

### **Emotional and social loneliness**

The following questions are about your social relationships. Please take a moment and think about your life and all of the people you know. (1 = strongly disagree, 9 = strongly agree)

I wish I had someone to talk to about personal topics.  
I wish I had deeper relationships in my life.  
I wish I had a closer connection in my life.  
I wish I had a more intimate bond in my life.

I wish I had more people to socialize with.  
I wish I had more friends.  
I wish I had a bigger social circle.  
I wish my social circle included more people.

## APPENDIX C: STUDY 3 METHODOLOGICAL DETAIL

### Loneliness manipulation: Writing task

*(High emotional loneliness)* Please tell us about a time when you felt you lacked a close relationship with one other person. Although you may have had casual friendships or acquaintances, you felt like you didn't have a deep bond. In other words, describe a time when you wished that you had a best friend, romantic partner, or other strong relationship that provided you with a sense of intimacy.

*(Low emotional loneliness)* Please tell us about a time when you felt you had a close relationship with one other person. Although you may have had casual friendships or acquaintances, you also felt like you had a deep bond with one person. In other words, describe a time when you had a best friend, romantic partner, or other strong relationship that provided you with a sense of intimacy.

*(High social loneliness)* Please tell us about a time when you felt you had a small social circle. Although you may have had a best friend or romantic partner, you felt like you had very few casual friendships and acquaintances. In other words, describe a time when you wished that you had connections with lots of people or belonged to a bigger social group.

*(Low social loneliness)* Please tell us about a time when you felt you had a large social circle. Although you may have had a best friend or romantic partner, you also felt like you had many casual friendships and acquaintances. In other words, describe a time when you had connections with lots of people or belonged to a bigger social group.

The first task is completed. Now please move on to the next task. The next study is interested in consumer's brand preferences. Please read carefully the scenario and answer the following questions.

### Brand assortment

Imagine that you visit a convenience store to buy a bottled water (16.9 oz) for your lunch every day. The store carries five water brands. Which brands would you choose each day?

	Nestle pure life water	Fiji	Dasani	Smartwater	Aquafina
Day 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Day 2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Day 3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Day 4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Day 5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Brand loyalty

Please indicate how strongly you agree or disagree with these statements about these five water brands. (1 = strongly disagree, 9 = strongly agree)

- I am loyal to...
- A year from now I am likely to drink...
- I am satisfied with...
- I am committed to...
- I have a close relationship with...

**Alternative explanation** (1 = very untrue of me, 7 = very true of me)

(Controllability) How true is the statement 'I am in control of my life'?

(Meaningfulness) How true is the statement: 'Life is meaningless'?

(Self-esteem) How do you feel about yourself:

- I felt good about myself (r) /
- I felt that the other people failed to perceive me as a worthy and likeable person /
- I felt somewhat inadequate.

## APPENDIX D: STUDY 4 METHODOLOGICAL DETAIL

### Loneliness manipulation: Scenario

*(Emotional loneliness)* Please imagine that in your life you have one best friend and a number of casual friendships. You and your best friend spend lots of time together and are very close, sharing your inner most thoughts. However, recently, you feel like your relationship with your best friend has become distant. Your best friend doesn't seem to understand you well. Even though you still have many casual friendships, the relationship with them is not very deep, and you feel lonely because you don't have any close relationships.

*(Social loneliness)* Please imagine that in your life you have one best friend and a number of casual friendships. You and your casual friends occasionally hang-out and make small talk. However, recently, all of your casual friends moved away. You have completely lost touch. Even though you are still close with your best friend, your social group is much smaller now and you feel lonely because you don't have a social circle.

*(Control)* Please imagine that you are on the way home from running errands. It was a normal day. The streets, stores, and places you pass are familiar to you.

Please briefly describe how you would feel in this situation? What would this experience be like? What would you do?

The first study is now complete. The next task would like to get your opinion on new services.

### Advertisement appeal: loyalty vs. brand assortment

Imagine that you are planning to buy socks and you learn about a service that sends you new socks each month. The advertisement for this service, J Socks Box, is below. Please take a look at it and answer some questions about it.

Loyalty emphasis Ad



Brand assortment emphasis Ad





### **Willingness to purchase**

Please describe your overall feeling about purchasing this service from J Socks Box

(1= never purchase it, 9 = definitely purchase it)

Assuming that it was within your budget how likely would you be to use the service described in the ad?

(1= definitely would not use it, 9 = definitely would use it)

If you need a socks subscription, how likely are you to use J Socks Box?

(1= extremely unlikely, 9 = extremely likely)

### **Advertisement attitude**

Please describe your overall feelings about this advertisement.

1 = not catchy, 9 = catchy

1 = doesn't appeal to me, 9 = appeals to me

1 = doesn't excite me, 9 = excites me

1 = unfavorable, 9 = favorable

## APPENDIX E: STUDY 5 METHODOLOGICAL DETAIL

### **Lay beliefs about brand relationship: baseline vs. non-substitute**

(Non-substitute) Sometimes people form relationships with companies as a substitute for interpersonal relationships. For example, customers form bonds with car brands, coffeeshop brands, and other types of brands in ways that are just like the bonds found among friends or families. Companies encourage this behavior to maximize their profits, but it can be harmful to customer. Brands cannot provide a feeling of companionship that comes from a group of friends, nor can they provide a feeling of closeness that comes from families and romantic partners. In the long-run consumers who rely on bonds with these brands often end up disappointed. Wellbeing comes from our relationships with people, not with brands.

(Baseline) When chocolate first came on the scene in Europe, it was a luxury only the rich could enjoy. Elites could afford the chocolate. However, by the late 19th century, people discovered different ways to make powdered chocolate that was easier to mix with water and invented the cocoa press to separate cocoa butter from roasted cocoa beans to inexpensively make cocoa powder. The inventions helped make chocolate affordable for everyone. Today, chocolate became a mass consumption item that spread to all classes. People can afford the chocolate and enjoy it easily. Chocolate is available to drink and also enjoyed as an edible confection or in desserts and baked goods.

What do you think was the main topic of the passage which you just read? Please summarize what you read in your words.

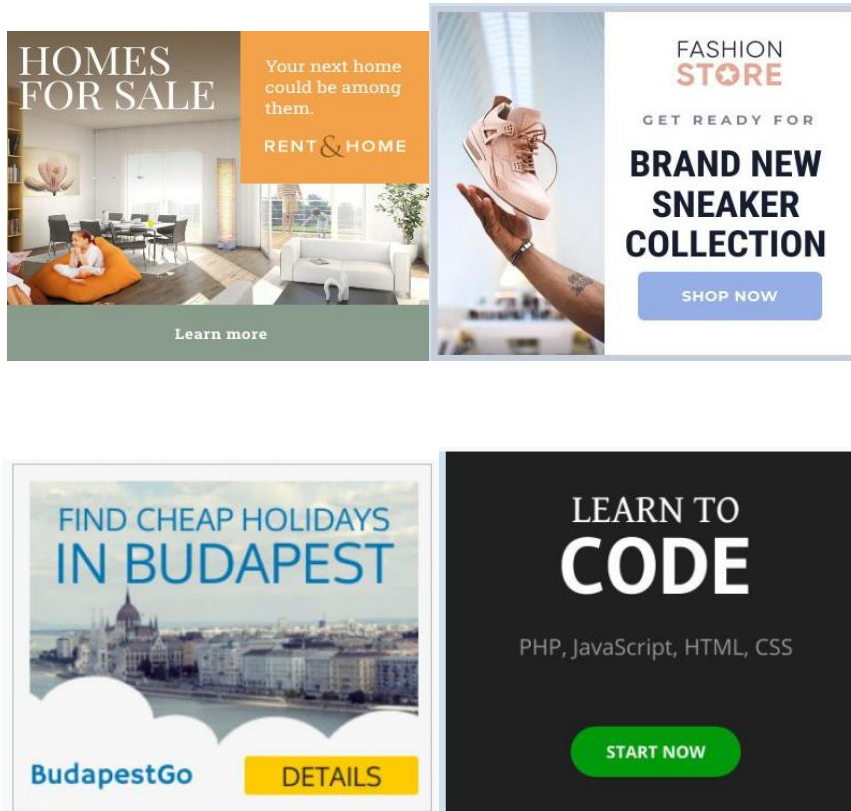
\* The process for loneliness manipulation and ad measures were identical to the study 4.

### **Lay beliefs about brand relationship: baseline vs. non-substitute**

I believe that I can build a human-like relationship with brands.  
I believe that brands can provide a feeling of companionship.  
(1= Not at all, 9=Very much)

## APPENDIX F: STUDY 1 METHODOLOGICAL DETAIL

### Advertisement stimuli – Control ad



## Target ads

Direct gaze

Averted gaze



## Willingness to Watch a Show

When you look at this banner ad, how likely are you to watch the TV show Finding Joy?  
(Not at all likely 1 – Very likely 9)

When you look at this banner ad, how motivated are you to watch the TV show Finding Joy?  
(Not at all motivated 1 – Highly motivated 9)

## Model attractiveness

The model in the ad is... (Not at all 1 – Very 9)  
attractive  
appealing  
good-looking

**Arousal**

Please indicate to what extent this ad evoked the following feelings.

Relaxed (1) – Stimulated (9)

Calm (1) – Excited (9)

Sluggish (1) – Frenzied (9)

Dull (1) – Jittery (9)

Sleepy (1) - Wide-awake (9)

Unaroused (1) – Aroused (9)

**Pre-knowledge**

Have you ever heard of this TV show or watched it? (Yes / No)

**Introversion**

Are you an extrovert or an introvert?

I am an extrovert (1) - I am an introvert (9)

**General interest**

In general, how interested are you in watching TV shows?

(Not at all 1 – A great deal 5)

## APPENDIX G: STUDY 2 METHODOLOGICAL DETAIL

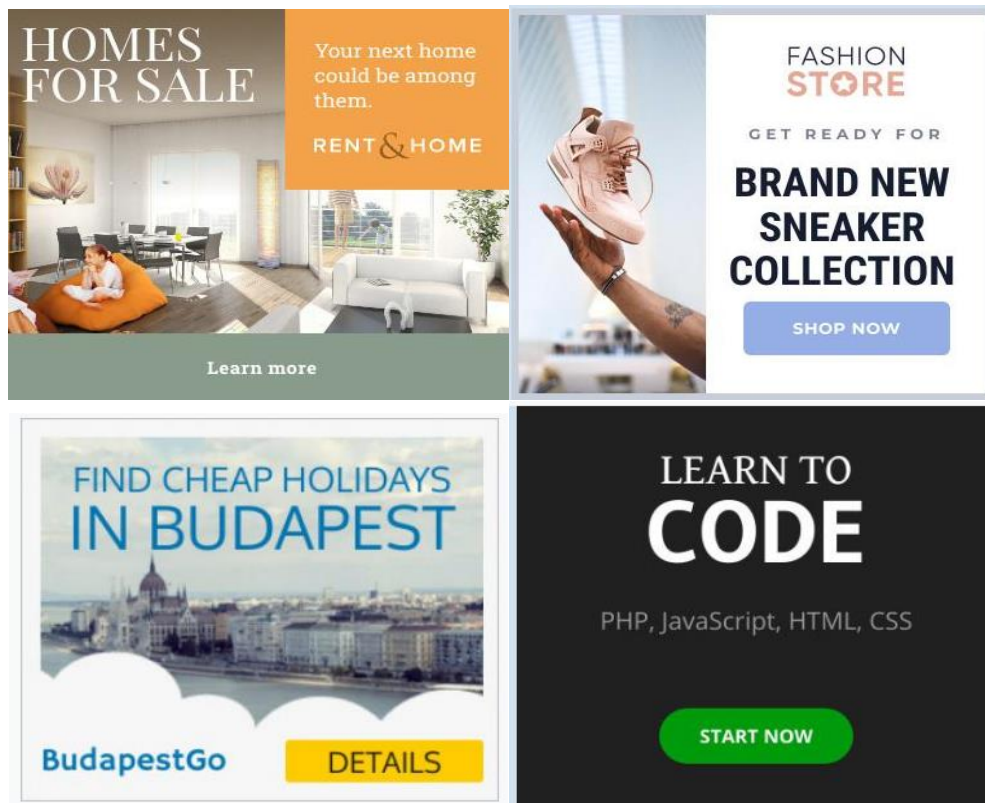
The purpose of this study is to understand how consumers navigate web banner advertisements. On the following page, you will be shown a series of advertisements. When you are ready, please go to the next page.



Just a second!

Please raise your hand and wait for assistance for the device check before moving on.

**Advertisement stimuli** – same control ads/target ad in study 1



## Target ads

Direct gaze

Averted gaze



Please raise your hand again and wait for assistance to detach the device.



### **Willingness to Watch a Show**

When you look at this banner ad, how likely are you to watch the TV show Finding Joy?  
(Not at all likely 1 – Very likely 9)

When you look at this banner ad, how motivated are you to watch the TV show Finding Joy?  
(Not at all motivated 1 – Highly motivated 9)

### **Model attractiveness**

The model in the ad is... (Not at all 1 – Very 9)  
attractive  
appealing  
good-looking

### **Arousal**

Please indicate to what extent this ad evoked the following feelings.

Relaxed (1) – Stimulated (9)  
Calm (1) – Excited (9)  
Sluggish (1) – Frenzied (9)  
Dull (1) – Jittery (9)  
Sleepy (1) - Wide-awake (9)  
Unaroused (1) – Aroused (9)

### **Pre-knowledge**

Have you ever heard of this TV show or watched it? (Yes / No)

### **Introversion**

Are you an extrovert or an introvert?  
I am an extrovert (1) - I am an introvert (9)

### **General interest**

In general, how interested are you in watching TV shows?  
(Not at all 1 – A great deal 5)



## APPENDIX H: STUDY 3 METHODOLOGICAL DETAIL

### Soundcheck

Before moving to the next, please check if your sound works properly.



In order to check if you are in a proper setting to watch a video ad,  
**we will have you listen to a word on the following page.**  
**The same word will be repeated two times.**

Once you are ready, please click the next button.

Please click the play button and indicate the word you heard.

Apple  
Chair  
Plant  
House  
Tiger

Now you are ready!

On the following page, you will be watching an advertisement (1 minute) and asked to answer the questions.

Averted gaze



Link: <https://www.youtube.com/watch?v=H0zMSUacUls>

Direct gaze



Link: [https://www.youtube.com/watch?v=8u7\\_UY4GLjc](https://www.youtube.com/watch?v=8u7_UY4GLjc)

**Click**

After watching the ad, would you click the ad to get the free sample?

Yes, I would click the ad.

No, I would not click the ad.

**Purchase intention**

When you watch this ad, how likely are you to buy Soft Cloud toilet paper?

(1 = Very unlikely; 9 = Very likely)

If you needed toilet paper, how likely are you to try Soft Cloud toilet paper?

(1 = Not likely at all; 9 = Extremely likely)

**Arousal**

Please indicate to what extent this ad evoked the following feelings.

Relaxed (1) – Stimulated (9)

Calm (1) – Excited (9)

Sluggish (1) – Frenzied (9)

Dull (1) – Jittery (9)

Sleepy (1) - Wide-awake (9)

Unaroused (1) – Aroused (9)

**Pre-knowledge**

Have you ever heard of this TV show or watched it? (Yes / No)

**Introversion**

Are you an extrovert or an introvert?

I am an extrovert (1) - I am an introvert (9)

**General interest**

In general, how interested are you in watching TV shows? (Not at all 1 – A great deal 5)

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