

Consumers Seeking Connection: Essays on When and Why Consumers Connect with
Others

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Dissertation submitted in partial fulfillment of
the requirements for the degree of Doctor
of Philosophy in Business Administration in the Graduate School
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ABSTRACT

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Abstract

In this dissertation, I explore the relational consequences of humor in brand-to-consumer and consumer-to-consumer relationships. In the first essay, I demonstrate that the cleverness of a brand's humor attempts affects consumers' brand attitudes and engagement with the brand. This effect is mediated by perceptions of brand warmth and competence and moderated by consumers' need for cognition. I demonstrate this effect in six studies including a field study (using data scraped from Twitter) and several lab experiments. In the second essay, I explore ways to make solitude feel less socially disconnecting. Across four studies, I show that people who experience solitary amusement feel less socially disconnected than people who experience solitary happiness. This effect is mediated by other-focus such that people who are amused (vs. happy) think more of others. Together, these two essays demonstrate that humor can be an effective way to foster both consumer-brand and consumer-consumer relationships.

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1. Introduction: Humor and Relationships

Humor is ubiquitous in both interpersonal and marketing communications. The average adult laughs about twenty times per day (Martin & Kuiper, 1999). Amusement seems especially common in social interactions: in conversations with close others, individuals tend to laugh about once every 90 seconds (Kurtz & Algoe, 2015). Furthermore, humor is a ubiquitous form of marketing communication. Depending on the year, between 50-70% of Superbowl commercials rely on humor appeals to engage consumers.

Humor is also highly valued in Western society. Consumers place a high importance on sense of humor when selecting romantic partners (Didonato, Bedminster, & Machel, 2013; Lundy, Tan, & Cunningham, 1998) and friends (Fraley & Aron, 2004). Furthermore, humor has economic consequences. Consumers are more likely to purchase from humorous salespeople (Lussier, Grégoire, & Vachon, 2017) and employees are more engaged at work if they have a humorous manager (Cooper, Kong, & Crossley, 2018).

In my dissertation, I explore the role of humor in fostering social connections. In the following sections, I define humor and provide a brief literature review of humor's role in building and maintaining social connections. Then in essay 1, I examine how consumers perceive brands that use clever humor. In essay 2, I demonstrate that

experiencing amusement when in solitude leads consumers to feel less socially disconnected.

1.1 What is Humor?

Humor appreciation is a psychological response characterized by the feeling of amusement, the tendency to laugh, and the cognitive appraisal that something is funny (Warren & McGraw, 2016a). Throughout the dissertation, I use the term “humor” or “humor attempt” to indicate any stimuli that might be appraised as funny. I reserve the term “amusement” for the emotional experience of perceiving something as funny.

Consumers find a wide variety of stimuli amusing, including anything from satire to slapstick. Until recently, different types of humor were thought to rely on disparate cognitive processes (e.g., Craik, Lampert, and Nelson 1996; Speck 1991). More recently, McGraw and Warren (2010) have proposed a unifying theory of what makes things humorous: benign violations.

Namely, McGraw & Warren (2010) suggest that amusement arises when consumers are simultaneously able to identify a violation and appraise that violation as benign (McGraw & Warren, 2010; Warren & McGraw, 2015, 2016a). The violation can be a norm violation or a physical or identity threat (McGraw & Warren, 2010; Warren & McGraw, 2016a). Norm violations take multiple forms, including cognitive norm

violations (i.e., things are not as they logically should be), social violations and moral violations.

In order for the violation to be amusing, it has to also be simultaneously appraised as benign. For physical and identity threats, this occurs when the threat is not as damaging as it may have originally seemed. For example, the physical threat is actually just a tickle, or the identity threat is actually just a well-intentioned tease. Normative violations are appraised as benign if the norm suggesting that something is wrong is counteracted by another norm saying it is right (McGraw and Warren 2010); this is the case for many puns where the homonym makes the lexical violation acceptable. It can also occur if the consumer only weakly holds the norm or if the norm is psychologically distant (McGraw and Warren 2010).

The social benefits of humor are widely recognized. The government of the African country Eritrea promotes laughter as a way to “bind people together and increase happiness and intimacy” (Berhane, 2013). In my dissertation, I explore humor’s ability to foster social connections in brand-consumer and consumer-consumer relationships.

1.2 The Social Functions of Humor

Amusement is a social emotion. Early theories of positive emotions proposed that social interaction was a necessary *antecedent* of amusement (Fredrickson, 2013).

Although more recent theorizing has moved away from this assertion (Warren & McGraw, 2016a), the social *consequences* of amusement have accrued increasing support. The broaden and build theory of positive emotions suggests that amusement creates social action tendencies including sharing amusement with others and continuing joviality. By following these urges, individuals accrue social resources (i.e., new or deepened social connections).

Humor serves a wide variety of functions in social relationships. Within the context of new relationships, humor can be used to signal both the personality of the joke-teller and their receptivity to new relationship partners. Specifically, a consumer who effectively uses humor signals her desirable personality characteristics (Bitterly, Brooks, & Schweitzer, 2016; Bitterly & Schweitzer, 2019; Didonato et al., 2013; Greengross, Martin, & Miller, 2012; Greengross & Miller, 2011) and honestly signals her attitudes and preferences (Flamson & Barrett, 2008). Similarly, when used in the context of an interaction, humor indicates an openness to forming new social connections (Campos, Schoebi, Gonzaga, Gable, & Keltner, 2015; Li et al., 2009) and a special interest in one's conversation partner (Anik & Hauser, 2020; Treger, Sprecher, & Erber, 2013).

In essay 1, I explore humor's ability to signal two desirable personality traits in brands: warmth and competence (Aaker, Garbinsky, & Vohs, 2012). Namely, I suggest that humor varies on the extent to which it is clever (i.e., requires the consumer to make

mental connections to understand the joke). I demonstrate that clever humor leads to higher perceptions of both brand warmth and brand competence, which have positive downstream consequences for brand engagement and brand attitudes.

Humor also plays an important role in deepening and maintaining extant social connections. For example, the co-creation of humor within the context of an existing relationship promotes affection and cohesiveness (Bippus, 2000; Ziv, 1988) while also facilitating the feeling that one is safe and supported within the relationship (Kurtz & Algoe, 2015).

However, it's unclear if amusement can foster social connections even if it is not elicited in a social interaction. I explore this possibility in my second essays. Specifically, I examine the experience of amusement in solitude. I show that consumers who experience solitary amusement report feeling less socially disconnected than consumers who experience the similar positive emotion of happiness.

2. Aha over Haha: Brands Benefit More from Being Clever than from Being Funny.

“MoonPies have been around for 100 years but not the ones you eat we made those a lot more recently” — @MoonPie on Twitter

In 2017, in response to a dwindling consumer base, the confectionary brand MoonPie revamped their marketing strategy (Ziegler, 2017). That year—without any changes to product, distribution, sales promotions, or paid advertising—MoonPie’s sales grew a record-breaking seventeen percent (Beer, 2017). The secret? MoonPie adopted a cleverly humorous brand personality on Twitter (Ziegler, 2017), demonstrating how humor can be used to successfully alter consumers’ impressions of a brand and result in positive downstream consequences.

This paper examines how the cleverness of a brand’s humor attempt affects consumers’ perceptions of the brand. We propose that comedy exists on a spectrum from purely funny (i.e., not clever at all) to cleverly funny. The more a consumer feels like they made a mental connection to understand a joke, the cleverer the joke is. These mental connections come in many forms: connections to lexical knowledge (i.e., word play), connections to cultural knowledge (i.e., cultural references), or their knowledge of how the world works (i.e., ellipses humor like the Postmates ad “when you eat a brownie that makes you want 500 brownies.”). We propose that consumers have higher

brand attitudes toward and more engagement with brands as their humor attempts become more clever.

This research aims to contribute to our understanding of humor in advertising. Previous studies have found conflicting results of humor's effect on brand attitudes (Duncan, 1979; Speck, 1987; Sternthal & Craig, 1973). We attempt to resolve these conflicting findings by suggesting a new dimension of humor, cleverness, that affects how humor influences brand attitudes. By investigating cleverness as a feature of benign signaling, we add to a growing body of literature that suggests that features of the violation affect humor's effectiveness (Warren & McGraw, 2016b).

2.1 Clever Humor in Advertising

Generally, humor can be conceptualized as a benign violation (McGraw & Warren, 2010; Warren, Barsky, & McGraw, 2021; Warren & McGraw, 2016a). That is, consumers will perceive something as humorous when they perceive a violation, but simultaneously appraise that violation as benign. This theory explains a variety of humorous stimuli including tickling and other physical threats (i.e., a benign physical violation), disparagement humor (i.e., a benign social violation), and incongruity resolution (i.e., a benign cognitive violation). As a note, to adhere to recent terminology guidelines (Warren et al., 2021), we refer anything that is intended to elicit humor as

comedy (or as humor attempts). We reserve the term “humor” for the psychological experience of perceiving a benign violation.

Cleverness is conceptualized by a sudden improvement in processing fluency (i.e., an “aha” moment) resulting in positive affect (Topolinski & Reber, 2010). Like humor (which requires a juxtaposition of a violation and benign interpretation), the “aha moment” usually requires the consumer to juxtapose disparate ideas (Amir, Biederman, Wang, & Xu, 2015). Because humor and cleverness share many cognitive features, they often co-occur. However, it is possible for a stimulus to be clever and not funny or funny and not clever (see Table 3 for illustrations). Although the scope of this paper is limited to comical advertising, results from correlational studies indicate cleverness may have positive effects for non-comedic stimuli as well (see Appendix A).

In this paper, we specifically examine whether clever humor (vs. non-clever humor) benefits brands. Within humor, we define cleverness as the extent to which the consumer accesses her own knowledge to make a benign interpretation. Humor therefore exists on a continuum from not clever at all to very clever. As defined here, clever humor shares traits with the incongruity-resolution theory of humor (Suls, 1972) and the comprehension elaboration theory (Wyer & Collins, 1992). In these theories (as in benign violation theory), humorous encounters initially require that a consumers’ experience a violation (e.g., of expectations, of the way the world ought to be, a

diminished value of a stimulus). According to these theories, consumers make a benign interpretation (i.e., solve the incongruity) by applying a different cognitive schema. The shift to a second schema allows the consumer to interpret the violation as benign, thus leading to amusement.

We propose that the mental effort required to access the second schema affects the perceived cleverness of the joke. Mental schema can be difficult to access because they are niche (i.e., not everyone possesses them) and/or because they are distal to the original schema. For example, the quip “*Statistics means never having to say you’re certain*” requires both a knowledge of statistics and a knowledge of the quote “*Love means never having to say you’re sorry*” from the movie *Love Story*. For a consumer to understand the joke, she must comprehend two niche topics: null hypothesis testing and 1970’s movies. Furthermore, the schema for statistics knowledge and 1970’s movies are likely distally related in consumers’ minds. A consumer who is thinking about statistics may need to invest more mental effort to access her knowledge of the 1970’s compared to her knowledge of more proximally related topics, like calculus.

Prior work has conceptualized clever humor as a distinct and affiliative (Martin, Puhlik-Doris, Larsen, Gray, & Weir, 2003) comic style separate from other comic styles like ironic, teasing, dirty, or self-deprecating humor (Martin & Ford, 2018; Ruch, Heintz, Platt, Wagner, & Proyer, 2018). Based on our conceptualization, any comic style can be

clever so long as the consumer makes a mental connection between two (distal) schemas. For example, you may tease a friend about his inability to meet women—juxtaposing a social violation (being made fun of) with a benign signal (friendly mannerisms; Keltner, Capps, Kring, Young, & Heerey, 2001). This tease can also be clever (e.g., “The only thing you’ve picked up at the bar lately is the check.”). If the tease is clever, your friend must juxtapose two schemas around the phrase “pick up” to interpret your joke.

Importantly, some comic styles may be more prone to cleverness than others. For example, in pure wit, the violation comes from a phrase that does not make sense until the consumer resolves two disparate schema—thus pure wit is definitionally clever. Dirty humor often makes use of double entendres, a clever form of humor, but can also be not clever (i.e., fart jokes). Nonsense humor relies on unresolved incongruities, and thus cannot be clever (Ruch et al., 2018).

2.2 Humor and Brand Perceptions

Having defined clever humor, we now move to a discussion of downstream consequences. We propose that consumers have higher brand attitudes and are more willing to engage with a brand that uses clever humor. Any affiliative form of humor is generally socially attractive (Warren, Barsky, & McGraw, 2018), but consumers should find clever humor especially attractive. Clever humor is unique from other forms of humor in its ability to simultaneously signal brand competence (i.e., a brand smart

enough to make distal mental connections; Burro, Canestrari, Savardi, Branchini, & Bianchi, 2018; Hoang, Knoferle, & Warlop, 2018; McQuarrie & Mick, 1996) and brand warmth (i.e., a brand making an affiliative joke that signals shared mental schema; Didonato, Bedminster, & Machel, 2013; Flamson & Barrett, 2008). Following from prior literature, we suggest that improved warmth and competence perceptions should lead to improved brand attitudes, even going so far as to shift brands into the “golden quadrant” of high in both warmth and competence (Aaker et al., 2012; Kervyn, Fiske, & Malone, 2012).

Finally, we propose a moderator of our effect: need for cognition. By definition, clever humor requires consumers to make connections to their own knowledge in order to make a benign appraisal (i.e., “get” the joke). Consumers who enjoy these sort of mental puzzles should garner more enjoyment from clever humor attempts than consumers who do not enjoy cognitively taxing activities (Burro et al., 2018).

2.3 Overview of Studies

We present six studies assessing the impact of clever humor on brand perceptions and attitudes. In study 1, we use data from Twitter to demonstrate that, controlling for funniness, more clever tweets garner higher engagement. In study 2, we experimentally manipulate cleverness (holding funniness constant) and examine effects on brand attitudes. In study 3, we examine the robustness of this effect by looking at the

relationship between cleverness and brand attitude, mediated through warmth and competence, across three brands and thirty advertisements. In study 4, we demonstrate the effect of cleverness in a within-subjects design. In study 5, we examine whether the effect of clever humor is moderated by need for cognition. In study 6, we demonstrate that the benefit of cleverness is attenuated when participants lack the requisite mental schema. Data are publicly available (<https://osf.io/syuxr/>). Across all studies, we weeded out automated responses (i.e., bots) by excluding participants who provided nonsense answers (e.g., “good”, “very interesting”, or text copied from the internet) in response to an open-ended question asking them to describe one question they answered in the survey. Demographics for participants in all studies can be found in Table 1. In our analyses, we adjust degrees of freedom to account for heterogeneity of variance where needed.

Table 1: Demographics for all studies in essay 1

	Gender			Age	Race						
	Women	Men	NB/Other	M(SD)	White	Black	Asian	Hispanic	Native	Multi-racial	Other
S1	625	712	13	40.22 (12.12)	1039	123	96	64	3	20	5
S2	223	257	2	40.65 (12.36)	383	49	26	21	1	10	2
S3	439	431	8	37.69 (12.66)	683	82	74	64	5	18	6
S4	151	142	8	32.79 (11.43)	218	24	29	21	2	7	0

S5	487	477	9	40.57 (13.33)	714	77	109	48	2	18	5
S6	297	272	8	33.75 (12.65)	389	43	82	48	0	14	1

Note. NB: non-binary; all demographics are reported on the final sample (i.e., after exclusions)

2.3 Study 1: The Effects of Clever Humor on Engagement

The preregistration for study 1 can be found at https://aspredicted.org/8SR_HZR.

In this study, we examine whether brands who use clever humor garner more social media engagement. Specifically, we examine whether ratings of a tweet’s cleverness are associated with the replies, retweets, and favorites that the tweet received. Replies represent users’ comments on content posted by the brand. Retweets represent users sharing branded content to their own Twitter feed. Favorites represent users’ positive reactions to the branded content. Although all of these metrics are measures of engagement, they are operationally distinct (Barger, Peltier, & Schultz, 2016) and are analyzed separately.

2.3.1 Methods

2.3.1.1 Gathering Stimuli

Our analysis was based on tweets scraped from four brands: Netflix, Hulu, Moonpie, and Little Debbie’s. We scraped all the tweets from these brands from January 1, 2021 to December 13, 2021 ($N = 33,927$ tweets). We excluded all tweets that Twitter identified as a “reply” to another user, leaving a final sample of 4,464 tweets. Upon

closer inspection, some tweets were seemingly replies but were not identified as such by Twitter. We retained these tweets to be in line with the pre-registered design. For each of the selected tweets, we scraped the number of replies, retweets, and favorites of the tweet as of December 13, 2021.

2.3.1.2 Participants

We recruited a sample of 1350 users from MTurk to rate the tweets. All participants were retained for analysis.

2.3.1.3 Procedure

All participants were shown ten randomly selected tweets. After viewing the tweet, participants rated the tweets on how funny (i.e., funny, humorous, comical; $\alpha = .95$) and clever (i.e., sharp-witted, clever, ingenious; $\alpha = .84$) the tweet seemed on sliding scales from 0 (*not at all*) to 100 (*extremely*). We aimed to have each tweet rated twice, however, due to the randomness involved in tweet selection, number of raters per tweet varied. Most tweets were rated twice (41%), or three times (27%). Some tweets were rated four or more times (29%). Despite our best efforts, 3% of tweets were rated only once and three tweets (.001%) were never rated. We retained tweets that were rated by one or more participants, but were not able to include the three tweets that were never rated. The unit of analysis in this study is the tweet. We therefore averaged the ratings of cleverness and funniness across all raters.

2.3.2 Results

We regressed log-transformed replies, retweets, and favorites on ratings of cleverness, controlling for brand dummy variables and ratings of funniness. Cleverness was a significant predictor of replies ($b = .003$, $SE = .001$, $t(4455) = 3.86$, $p < .001$), retweets ($b = .003$, $SE = .001$, $t(4455) = 4.56$, $p < .001$) and favorites ($b = .004$, $SE = .001$, $t(4455) = 4.91$, $p < .001$). We summarize these results in Table 2.

Table 2: Regression results (b , SE , R^2) for Study 1.

	Replies		Retweets		Favorites	
Cleverness	.003*** (.001)	.003*** (.001)	.004*** (.001)	.003*** (.001)	.007*** (.001)	.004*** (.001)
Funniness		-.001 (.001)		-.001 (.001)		.001* (.001)
Brand Dummies Included	No	Yes	No	Yes	No	Yes
Observations	4461	4461	4461	4461	4461	4461
R^2	.01***	.42***	.01***	.56***	.01***	.56***

Standard errors in parentheses

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

As cleverness and funniness were positively correlated ($r = .68$, $p < .001$), we calculated the Variance Inflation Factors (VIFs). The VIFs for funny and clever were 1.90 and 1.88 respectively, suggesting no multicollinearity.

Table 3: Examples from Twitter (Study 1) of ads falling in each quadrant of a 2(funny) x 2 (clever) matrix

		Funniness	
		0.5 SD or more below the mean	0.5 SD or more above the mean
Cleverness	0.5 SD or more below the mean	what's your job and what tv show or movie has the most accurate depiction of it? – Hulu (@hulu) March 24, 2021	May the Lord OPEN and then immediately close Twitter. – Hulu (@hulu) May 27, 2021
		Carrie, Miranda, Charlotte, and Samantha are now on Netflix 📺: Sex And The City: The Movie 📺 Sex and the City 2 pic.twitter.com/yAmOBkRBom – Netflix (@netflix) January 11, 2021	feeling cute, might binge #RPDR later – Hulu (@hulu) March 7, 2021
		"It's nice to be important, but it's more important to be nice." - @TheRock, The Champion of our Hearts. #PCAs pic.twitter.com/ZaOFH0Kd0T – Hulu (@hulu) December 8, 2021	What #Olympics phrase do you keep saying on repeat? I'll go first. "Stick the landing" – Hulu (@hulu) July 23, 2021
	0.5 SD or more above the mean	"If you put in nothing, it'll be nothing." And Radha Blank put her whole self into The 40-Year-Old Version, a bold and fresh film that she wrote, directed, and stars in. pic.twitter.com/OH4eWEOWGf – Netflix (@netflix) February 24, 2021	Sometimes I think everyone in Gotham knows Batman is Bruce Wayne and everyone is just kinda humoring him. – Hulu (@hulu) August 3, 2021

2.4 Study 2: Experimental Evidence

In study 2, we present experimental evidence of the benefits of clever humor. Specifically, we exposed participants to a cleverly humorous vs. purely humorous version of an ad and measured their brand attitudes for the advertiser. The pre-registration for study 2 can be found at: https://aspredicted.org/BDG_1DH.

2.4.1 Methods

2.4.1.1 Participants

Participants ($N = 500$) were recruited from Amazon's Mechanical Turk. After removing participants who failed an attention check ($n = 8$) and apparent automated responses ($n = 5$), we were left with a sample of 487 participants.

2.4.1.2 Procedure

Participants viewed a cleverly funny ("When you want ramen instantly, but not instant ramen") or purely funny ("You're too old for instant ramen") advertisement for the brand Postmates. Both the clever and funny text were superimposed on the same picture of restaurant-quality ramen. As a manipulation check, participants rated the ad on how clever (witty, clever, ingenious; $\alpha = .93$) and funny (funny, humorous, comical; $\alpha = .97$) it was on a seven-point scale from 1 (*not at all*) to 7 (*extremely*). The dependent

variable was a 7-point bi-polar measure of brand attitude (unappealing:appealing; bad:good; unpleasant:pleasant; unfavorable:favorable; unlikable:likable).

2.4.2 Results

Participants rated the funny ($M = 3.86$, $SD = 1.80$) and clever ad ($M = 4.00$, $SD = 1.59$) as similarly funny, $t(478.35) = .89$, $p = .38$, $d = .08$. The clever ad was rated as more clever ($M = 4.85$, $SD = 1.41$) than the funny ad ($M = 3.93$, $SD = 1.73$), $t(466.64) = 6.39$, $p < .001$, $d = .58$.

As expected, participants had a higher brand attitude for Postmates if they were exposed to the cleverly funny ($M = 5.84$, $SD = 1.12$) versus purely funny ($M = 4.76$, $SD = 1.70$) advertisement, $t(421.20) = 8.33$, $p < .001$, $d = .75$

2.5 Study 3: Experimental Evidence

In study 3, we present further correlational evidence of the benefits of clever humor. Specifically, we demonstrate that the effect on brand attitudes is mediated by perceptions of warmth and competence. To reduce concerns regarding the variety of non-clever humorous ads, we included ads using physical humor (e.g., a man pulling his hair out because of a stressful mortgage), absurd humor (e.g., a woman having a conversation with her husband who has been transformed into a hedgehog), cute humor (e.g., a man singing with his dog) and denigrating humor (e.g., making fun of people with bad tattoos). We also used a wide variety of clever humor styles including cultural

references (e.g., smart cars imitating Darth Vader) and puns (e.g., Snoop Dogg talking about a “can of bisque”). Brands and advertisements were selected by the first and second authors based on personal knowledge of brands that used a range of clever and non-clever humor in their advertising. The pre-registration for study 3 can be found at <https://aspredicted.org/blind.php?x=a2js75>.

2.5.1 Methods

2.5.1.1 Participants

Participants ($N = 952$) were recruited from Amazon’s Mechanical Turk. After removing apparent automated responses, we were left with a sample of 932 participants.

2.5.1.2 Procedure

Participants watched one of a possible 30 ads from the brands Smart Car ($n = 10$), FirstBank ($n = 10$), and T-mobile ($n = 10$). Using the same items as Study 1, participants rated the ad on how clever and funny it was on a seven-point scale from 1 (*not at all*) to 7 (*extremely*). Next, participants rated the extent to which the advertisement made the brand seem warm (friendly, nice, warm, sincere; $\alpha = .91$) and competent (skillful, confident, competent, able; $\alpha = .91$) and provided their brand attitude ($\alpha = .97$).

2.5.2 Results

We regressed ratings of cleverness on warmth, competence, and brand attitudes. In all regressions, we included ad as a random factor (i.e., random intercepts for ad; Judd, Westfall, & Kenny, 2012). We did not pre-register including ad as a random factor but did so in light of reviewer feedback. We also controlled for funniness and brand dummies. Cleverness was a significant predictor of warmth ($b = .26, SE = .02, p < .001$), competence ($b = .32, SE = .02, p < .001$), and brand attitude ($b = .41, SE = .03, p < .001$). We summarize these results in Table 4.

Table 4: Regression results (b, SE, R^2) for Study 3.

	Warmth		Competence		Brand Attitudes	
Cleverness	.35*** (.02)	.26*** (.02)	.36*** (.02)	.33*** (.02)	.58*** (.02)	.41*** (.03)
Funniness		.14*** (.02)		.06** (.02)		.25* (.03)
Brand Dummies Included	No	Yes	No	Yes	No	Yes
Observations	932	932	932	932	932	932
R^2	.42	.49	.45	.48	.47	.57

Standard errors in parentheses

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

As cleverness and funniness were positively correlated ($r = .63, p < .001$), we calculated the VIFs. The VIFs for funny and clever were 1.63 and 1.16 respectively, suggesting no multicollinearity.

Next, we estimated the indirect effect of cleverness on brand attitude through warmth and competence. Precisely, we used the “mediate” package in R to estimate a multiple mediation model with Quasi-Bayesian confidence intervals ($k = 1000$). On the a-path, we included ad as a random factor and controlled for ratings of funniness and ad dummies. The results indicate that the effect of cleverness on brand attitude was mediated by both warmth ($b[95\% \text{ CI}] = 0.15 [0.12, 0.18]$) and competence ($b[95\% \text{ CI}] = 0.16[0.12, 0.19]$).

2.6 Study 4: Within-Subjects Assessment of Brand Attitude

Next, we tested whether cleverness improved brand attitude in a within-subjects design. To eliminate the possibility that the correlation between cleverness and brand attitudes was inflated by common method bias (Podsakoff, MacKenzie, & Podsakoff, 2012), we collected ratings of cleverness and funniness from a pre-test conducted with a separate sample.

2.6.1 Methods

2.6.1.2 Pre-test

The first author designed 20 advertisements spanning multiple products and services (i.e., beverages, delivery services, dating application, soap, houseplants, handymen, fitness applications). These ads were pre-tested on funniness and cleverness to ensure that we included ads in all four quadrants of the funny \times clever interaction.

Specifically, all the advertisements were pre-tested on a sample of 150 Prolific workers. Each participant viewed 20 researcher-developed ads sequentially and rated them on a 3-item measure of cleverness (i.e., witty, clever, ingenious) and a 3-item measure of funniness (i.e., funny, humorous, hilarious) using a 7-point scale anchored by 1 (*not at all*) and 7 (*extremely*). The average rating for each advertisement was used as a measure of advertisement funniness and cleverness in the main study.

2.6.1.3 Ratings of Brand Attitude

A separate set of participants viewed each ad and completed a one-item measure of brand attitude for each ad: To what extent do you think the advertisement made the brand seem... 1 (*unfavorable*) to 7 (*favorable*).

We calculated a mean-cleverness and a mean-funniness score for each ad, averaged across all ratings of the pre-test participants. We estimated the following model:

$$Y_{ij} = \beta_0 + \beta_1 X_{1j} + \beta_2 X_{2j} + u_{i0} + u_{0j} + \varepsilon_{ij},$$

where Y_{ij} represents ratings of brand attitude given by subject i after for ad j . X_{1j} and X_{2j} represent average ratings of cleverness and funniness, respectively, for ad j . This model contains random intercepts for subjects and ads, represented by u_{i0} and u_{0j} ,

respectively, and a residual error term represented by ε_{ij} . We are primarily interested in estimating the effect of cleverness on brand attitudes, represented by β_1 in the model. We estimated the model with restricted maximum likelihood (REML).

2.6.2 Results

We tested whether participants exhibited higher brand attitudes towards the advertised brand after being exposed to clever ads, controlling for how funny the ads were.

As predicted, there was a positive effect of cleverness on brand attitude ($b = 1.40$, $SE = 0.30$, $p < .001$). That is, ads that received higher cleverness ratings generated higher brand attitudes, after controlling for ratings of funniness. There was a negative, significant effect of funniness ($b = -1.14$, $SE = 0.25$, $p < .001$). It is also informative to examine the variance components of the model. Both the random effect for subjects ($\sigma^2 = 0.69$, 95% CI = [0.58, 0.84]) and for ads ($\sigma^2 = 0.19$, 95% CI = [0.09, 0.38]) were significantly different from 0, suggesting that there was significant subject-to-subject variation and ad-to-ad variation in brand attitude.

2.7 Study 5: Moderation by Need for Cognition

In study 5, we demonstrate that clever humor is not equally effective for all consumer groups. Namely, we demonstrate that the positive effects of clever humor on

brand attitudes are stronger for consumers with a higher need for cognition. The pre-registration for this study can be found at: https://aspredicted.org/9P3_FY5.

2.7.1 Methods

2.7.1.1 Participants.

Participants ($N = 999$) were recruited from Amazon's Mechanical Turk.

Participants were excluded if they reported having trouble watching the ads ($n = 5$), failed an attention check ($n = 8$), or they were an apparent automated responder ($n = 13$).

The final sample was 973 participants.

2.7.1.2 Procedure.

The procedure for this study was identical to study 3 with two exceptions. We pre-registered using only six ads from each brand to reduce sample size requirements (i.e., using 18 ads rather than 30). However, due to experimenter error, we only removed two ads from the smart car brand (i.e., used 28 ads total). Second, we included a six-item Need for Cognition measure (Lins de Holanda Coelho, Hanel, & Wolf, 2020) after the brand attitude measure.

2.7.2 Results

In the regression, we included ad as a random factor and controlled for brand dummy variables and the funniness of the advertisement. Funniness ($b = .19$, $SE = .03$, $p < .001$), cleverness ($b = .29$, $SE = .07$, $p < .001$), and the interaction between cleverness and

need for cognition ($b = .04$, $SE = .02$, $p = .04$) were significant predictors of brand attitudes (See Figure 1). Need for cognition alone approached, but did not meet, conventional levels of significance ($b = -.15$, $SE = .09$, $p = .07$). The Johnson Neyman point for Need for Cognition was outside the observed range ($JM = -2.43$; Range = 1-5) but indicates that the benefits of clever humor are stronger in consumers with higher Need for Cognition. Full analyses, including the warmth and competence variables, can be found in Table 4.

Table 5: Regression results (b , SE , R^2) for Study 5

	Warmth		Competence		Brand Attitudes	
Cleverness	.35*** (.01)	.24*** (.05)	.35*** (.01)	.33*** (.04)	.55*** (.02)	.29*** (.07)
Funniness		.13*** (.02)		.02 (.02)		.19* (.03)
NFC		-.01 (.06)		.03 (.06)		-.15 (.09)
Cleverness x NFC		.01 (.01)		.00 (.01)		.04* (.02)
Brand Dummies Included	No	Yes	No	Yes	No	Yes
Observations	973	973	973	973	973	973
R^2	.46	.52	.46	.48	.47	.54

Standard errors in parentheses

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

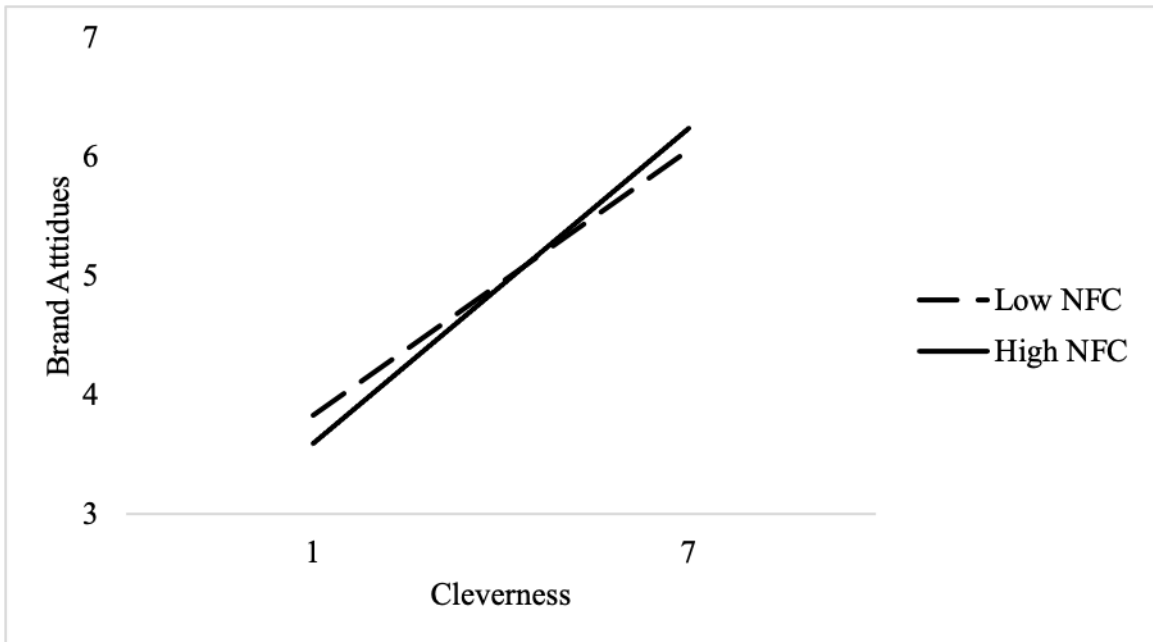


Figure 1: Interaction between cleverness and need for cognition on brand attitudes from Study 5

2.8 Study 6: Getting the Joke

In this study, we demonstrate the inherent riskiness of using clever humor if the consumer is unsuccessful at “getting the joke.” Specifically, we demonstrate what happens when an advertisement draws on cultural knowledge that the consumer does not possess.

2.8.1 Methods

Participants ($N = 599$) were recruited from Prolific. Participants were excluded from the sample if they reported issues seeing or hearing the video ($n = 3$), if they could not accurately identify the advertised brand ($n = 1$), or if their text responses indicated

that they might be an automated responder ($n = 18$). The final sample was 577 participants (297 female, 272 male, 8 non-binary; $M_{age} = 33.75$, $SD = 12.65$; 389 White, 82 Asian, 48 Hispanic or Latino, 43 Black, 14 multiracial and 1 other).

Across both conditions, participants were introduced to bachelor contestant Nick Viall. In the control condition, participants received information about Nick that would not help them interpret an upcoming advertisement. They saw a picture of Nick and read: "The ad you will watch features Nick Viall. Nick is a star from the Bachelor/Bachelorette, a reality dating show on ABC. He has been on 4 seasons altogether." Then, they watched a 59 second video of Nick taking Bachelorette Kaitlyn Bristowe on a date. Participants in the experimental condition saw information relevant to interpreting the cultural reference in the advertisement. Namely, they saw the same picture of Nick and read the same biography with the following added: "Nick has been dumped on national TV 3 times, twice while he was proposing marriage to a co-star." Then, they watched a 54 second clip of Nick proposing to Bachelorette Kaitlyn Bristowe and being rejected.

In both conditions, participants then watched a 30 second advertisement for Halo Top ice cream featuring Nick Viall. The advertisement plays on Nick's disillusionment with love causing him to overconsume ice cream and thus require a low-calorie option.

All stimuli are available at

https://osf.io/mspfj/?view_only=db461620576642e6b8eaf8d496466359.

After viewing the advertisement, participants rated Halo Top on warmth ($\alpha = .91$) and competence ($\alpha = .92$). Then, they provided their brand attitudes for Halo Top ($\alpha = .98$). Finally, participants rated their feelings about the Bachelor(ette) franchise on a scale from 1 (*very negative*) to 7 (*very positive*).

2.8.2 Results

2.8.2.1 Attitudes towards the Bachelor(ette)

We observed an unpredicted difference in attitudes towards the Bachelor(ette) franchise across conditions. Participants in the experimental condition had slightly worse attitudes about the series ($M = 3.23$, $SD = 1.48$) than participants in the control condition ($M = 3.49$, $SD = 1.53$; $t(575) = 2.03$, $p = .04$, $d = .17$). We present all future analyses controlling for attitudes.

2.8.2.2 Warmth

Participants in the experimental condition rated Halo Top as warmer ($M = 2.90$, $SD = 1.01$) than participants in the control condition ($M = 2.70$, $SD = 1.07$; $F(1, 574) = 8.00$, $p = .01$, $\eta^2 = .01$).

2.8.2.3 Competence

Participants in the experimental condition perceived Halo Top as more competent ($M = 3.35$, $SD = 1.07$) than participants in the control condition ($M = 3.22$, $SD = 1.03$; $F(1, 574) = 4.07$, $p = .04$, $\eta_p^2 = .01$).

2.8.2.4 Brand Attitudes.

Participants in the experimental condition had higher brand attitudes for Halo Top ($M = 4.72$, $SD = 1.83$) than participants in the control condition ($M = 4.38$, $SD = 1.84$; $F(1, 574) = 7.89$, $p = .01$, $\eta_p^2 = .01$). Both warmth ($B[95\%CI] = .22[.064, .391]$) and competence ($B[95\%CI] = .10[.003, .206]$) mediated the effect of condition on brand attitudes.

In this study, we demonstrated that clever humor does not have positive downstream consequences when consumers do not possess the cultural knowledge required to understand the joke. While we didn't empirically examine it, we might expect highly similar results if a consumer possessed the cultural knowledge required, but was unsuccessful in applying it and "getting the joke." This finding should serve as a warning to advertisers: do not employ clever humor without first ensuring that your customers possess the relevant knowledge.

2.9 Discussion

This paper examines how consumers respond to cleverly humorous advertisements. We demonstrate that as brands' humor attempts become more clever, consumers are more willing to engage with the brand and report higher brand attitudes. The effect of clever humor is mediated by warmth and competence. The effect of clever humor is attenuated for consumers with a low need for cognition (i.e., who have low desire to juxtapose schema). In study 6, we also demonstrate an attenuated effect of cleverness when consumers do not possess required schema.

We contribute to the branding literature by proposing cleverness as a mechanism that explains the previously conflicting findings regarding humor's effects on brand attitudes. Namely, we propose that clever humor leads to improved brand attitudes, while non-clever humor need not.

Indeed, across our studies, we demonstrated inconsistent effects of funniness on the key dependent variables. In studies 1, 3 and 5, funniness of an advertisement was positively related to brand attitudes or engagement. However, in study 4, funniness had a negative effect on brand attitudes. Our mixed results are congruent with a literature finding mixed effects of humor on brand attitudes. Humor's effect on brand attitudes varies based on characteristics of the product (Eisend, 2009), the brand (Howe & Fitzsimons, in preparation), and the humor attempt (Warren & McGraw, 2016b). Indeed

in Study 4, the funny yet non-clever ads tended to be those that teased the consumer. It is possible that after removing shared variance with cleverness, the funny ads in this study tended to be those with severe violations (i.e., those that are unlikely to improve brand attitudes; Warren & McGraw, 2016b). We suggest that our results contribute to the literature on when humor is most effective by showing that cleverer humor is often more effective.

As an increasing number of advertisers turn to humor to engage consumers (Ace Metrix, 2020), it is important to understand what types of humor are most effective. We demonstrate that clever humor improves brand attitudes and brand engagement. We show that in conditions where consumers may struggle to juxtapose mental schema, such as low need for cognition (Study 5) or not possessing the requisite schema (Study 6), the effect of cleverness is attenuated. We expect that any situation that makes juxtaposing schema difficult (i.e., cognitive load, tiredness) should also attenuate the effect.

We present two directions for future research. First, certain brands may benefit more from clever humor than others. For example, clever humor may be congruent with competent or sophisticated brand personalities but not rugged or exciting personalities. Second, we have provided examples of stimuli that lead to the perception of cleverness (e.g., pop-culture references, ellipses, word play). These types of clever humor may be interpreted differently. For example, consumers may reject brands participating in

discussions of popular culture (Fournier & Avery, 2011), potentially making pop-culture references a weaker avenue for clever humor.

3. Amusement Makes Solitude Less Socially Disconnecting

Even before the COVID-19 pandemic forced many individuals into isolation, the US government declared an “epidemic” of loneliness in America (Health Resources & Services Administration, 2019). In 2019, 61% of Americans reported feeling lonely (Cigna, 2020). Since the beginning of the pandemic, Americans have reported reduced social interactions and lower quality social relationships (Buecker & Horstmann, 2021), leading to a robust increase in loneliness in recent years (Ernst et al., 2022). High rates of social disconnection are concerning from a policy and public health perspective. Feeling socially disconnected is as deleterious to one’s health as smoking or problematic drinking (Rico-Urbe et al., 2018; Tate, 2018), and the US government spends \$6.7 billion per year on conditions related to loneliness and social isolation (Health Resources & Services Administration, 2019).

Being alone does not necessitate feeling socially disconnected. For decades, philosophers and spiritual figures have suggested innumerable benefits to solitude. The scientific literature is just now catching up. Solitude—defined as the absence of social interaction (Lay, Pauly, Graf, Biesanz, & Hoppmann, 2019)—can be experienced positively, even as a way to connect with others (Averill & Sundararajan, 2013; Long &

Averill, 2003; Long, Seburn, Averill, & More, 2003). In this paper, we explore features of solitude that facilitate connection vs. disconnection with others.

As people spend an increasing amount of time in solitude (U.S. Bureau of Labor Statistics, 2020), it is important to understand what features of the experience are likely to make the solitary individual feel socially connected (vs. disconnected). In this paper, we draw on work in positive psychology to posit that people who feel amused during solitude will feel more socially connected than people experiencing a similar positive emotion (i.e., happiness).

Why should amusement be particularly socially connecting? According to the broaden and build theory of positive emotions (Fredrickson, 2013), amused individuals have a tendency to want to share the laugh with others. Indeed, amusement is self-expansive (i.e., prompts consumers to include others in their self-concept; Fraley & Aron, 2004) and non-specific (i.e., it increases bonding with individuals who were not involved in the humorous incident; Kashdan, Yarbrow, McKnight, & Nezlek, 2014). We therefore suggest that amusement, even when experienced in solitude, prompts individuals to think of others. These thoughts of others make individuals feel socially connected. In line with recent definitions (Warren et al., 2018), we use the term amusement to refer to the emotional state of perceiving something as humorous (i.e., the

emotional aspect of humor appreciation). We use the term comedy to refer to a stimulus that elicits or is intended to elicit amusement.

This work makes several theoretical and practical contributions. First, we contribute to the literature on solitude, by empirically demonstrating conditions wherein solitude can be socially connecting. Second, we contribute to the literature on amusement by demonstrating that amusement—often conceptualized as a purely social emotion (Fredrickson, 2013)—is frequently experienced in solitude. Third, we contribute to a growing body of literature on interventions to combat social disconnection by changing the way consumers relate to solitude (for a review see Masi, Chen, Hawkley, & Cacioppo, 2011).

In the sections that follow, we briefly review the literatures on solitude and positive emotions, with a particular focus on amusement (our focal emotion) and happiness (our comparison emotion). Then, in four studies, we show that solitary amusement is more socially connecting than emotion-neutral solitude and solitary happiness. This effect is mediated by thoughts of others.

3.1 Literature Review

3.1.1 Solitude

Being alone does not always beget loneliness. Research has recently made the distinction between solitude, aloneness, and loneliness (Burger, 1995; Cacioppo &

Hawkley, 2009; Larson, 1990). Solitude is defined by the absence of social interaction (Lay et al., 2019). For our purposes, we define solitude as also excluding one-sided communication like television, radio, and reading. Conversely, aloneness is defined by the physical absence of others. For example, an individual may be in solitude if she is focused on writing in a busy office. Similarly, an individual might be alone, but not in solitude, if she is talking on the phone or messaging with friends. Both constructs are distinct from loneliness, which is a perception of unmet social needs, and can occur even during in-person interactions (i.e., when people are neither alone nor in solitude; (Hawkley & Cacioppo, 2010).

A small body of work has emerged suggesting that solitude can have a host of positive outcomes including creativity, spirituality, and emotion regulation (Long & Averill, 2003; Nguyen, Ryan, & Deci, 2018). These instances of solitude—called positive solitude—are largely grouped together and distinguished from negative solitude (Lay et al., 2019). Positive solitude is characterized by positive emotions (e.g., serenity, awe, interest; Lay et al., 2019; Long et al., 2003; Nisenbaum, 1984) while negative solitude is characterized by anxiety, loneliness, pining and sadness (Nisenbaum, 1984).

Prior research has identified several predictors of positive solitude experiences. First, solitude is more likely to be positive if the individual voluntarily chooses it (Averill & Sundararajan, 2013; Long & Averill, 2003). This is supported by research

demonstrating that individuals with rich social networks (i.e., those who could choose to be with others if they wanted) are more apt to have positive solitude experiences (Pauly, Lay, Scott, & Hoppmann, 2018). The frequency of positive solitude experiences also seems to be an individual difference, with some individuals finding solitude more positive than others (Lay et al., 2019; Long & Averill, 2003).

While prior work has largely examined positive solitude through participants' self-reports of the pleasantness of the solitude (Lay et al., 2019; Pauly et al., 2018), we examine one specific purported outcome of positive solitude: social connection. Theorists have proposed that people can feel connected to others while in solitude (Averill & Sundararajan, 2013; Koch, 1994; Nisenbaum, 1984). Furthermore, a qualitative examination of positive solitude suggests that solitary individuals often feel close to absent others (Long et al., 2003). However, empirical work has largely found that being alone is associated ego-centricity (Uziel, Seemann, & Schmidt-Barad, 2020) and a withdrawal from others (Long & Averill, 2003). Indeed, researchers often make the assumption that solitude begets social disconnection, and reducing solitude should increase social connection (Masi et al., 2011).

In this paper, we attempt to distinguish the types of solitude experiences that are likely to lead individuals to feel relatively more or less socially connected. In doing so, we contribute to the literature on social disconnection by questioning the implicit

assumption that solitude is inextricably linked to social disconnection. We also contribute to a growing literature on positive solitude by suggesting that the specific positive emotions experienced during solitude affect outcomes.

3.1.2 Positive Emotions in Solitude: Amusement and Happiness

Theorists and qualitative researchers have documented instances wherein solitude led individuals to feel socially connected to others and to the broader world (Averill & Sundararajan, 2013; Koch, 1994; Long & Averill, 2003; Nisenbaum, 1984). However, scholars lack an understanding of the conditions that lead to such positive solitude experiences. We propose that the emotions experienced during solitude impact feelings of social connectedness.

Of note, we limit ourselves to positive solitude experiences — specifically comparing two positive emotions that are common in solitude: happiness and amusement. In doing so, we expand beyond prior work merely demonstrating the difference between positive and negative solitude experiences for outcomes like social disconnection (Masi et al., 2011). Rather, we demonstrate that there are meaningful differences even within positive solitude experiences.

3.1.2.1 Amusement

When consumers perceive a comedic stimulus as funny, it results in an emotional (i.e., amusement), cognitive (e.g., “that’s funny!”) and behavioral (e.g., laughing)

response (Warren et al., 2018). In this paper, we focus on amusement—the emotional experience of perceiving something as funny. It is important to delineate related constructs that we do not examine. Namely, we are not examining comedy production (i.e., the act of creating a comedic stimulus) nor are we examining sense of humor (i.e., stable differences in an individual’s ability to produce and/or appreciate comedy). Although these constructs may be related to solitary amusement—for example people with a good sense of humor might experience amusement more often—they are not central to our hypotheses.

Amusement is largely conceptualized as a social emotion, with early research going so far as to say that people only experience amusement in social settings (Fredrickson, 2013). However the working definition of comedy (i.e., stimuli that elicit amusement)—the benign violation theory (McGraw & Warren, 2010; Warren & McGraw, 2016a)—does not require amusement to be elicited within a social setting. Indeed, in a pilot study of 152 participants, 111 (73%) could recall an experience of solitary amusement. Of the participants who reported feeling solitary amusement, 62% said they feel amusement during solitude at least once a week. Therefore, although solitary amusement is common, it has received relatively little empirical examination.

At first glance, readers may wonder whether solitary amusement shares characteristics with a self-enhancing humor style (Martin et al., 2003). Self-enhancing

humor is a relatively well studied humor style wherein consumers turn to humor to alleviate negative emotions such as loneliness or anxiety (Martin et al., 2003). Although individuals could certainly use self-enhancing humor when solitary, we note two reasons that these constructs are orthogonal: (1) self-enhancing humor need not be solitary (e.g., Caird & Martin, 2014; Campbell, Martin, & Ward, 2008; Frisby, Horan, & Booth-Butterfield, 2016; Romero & Cruthirds, 2006), and; (2) unlike solitary amusement, self-enhancing humor is definitionally used to cope with negative emotions (Martin et al., 2003). Although solitary amusement can be used to cope, it can also occur in entirely positive solitude experiences.

We suggest that amusement experienced in solitude can serve a social function. Although studies of amusement largely study the social consequences of sharing a laugh with others, there is some suggestive evidence that amusement elicited in non-social situations may still be socially connecting. First, amusement is a self-expansive emotion (Fraley & Aron, 2004), meaning that it encourages people to include others in their self-concept. This process may still be possible even when consumers laugh alone. Second, even recalling an amusing social interaction, something individuals commonly do in solitude, increases relationship satisfaction with the original conversation partner (Bazzini, Stack, Martincin, & Davis, 2007). Third, the effects of amusement on social relationships are not unique to the original conversation partner: a consumer who

laughs with person A not only develops a strong relationship with person A, but also feels more bonded to subsequent interaction partners (e.g., person B; Kashdan et al., 2014). Therefore, a consumer who laughs alone may feel connected to people she encounters subsequently. Taken together, these findings suggest that solitary amusement may connect individuals to others by (1) prompting them to include others in their self-concept, (2) allowing them to recall happy times with others, and/or (3) making them more open to social connection with others.

Specifically, we expect that experiencing solitary amusement increases individuals' attentional focus on social others (a construct we call "other-focus"). Throughout the paper, we measure other-focus by counting the number of third-person (e.g., he, she, they) and first-person plural (e.g., we) pronouns participants use. Pronoun usage patterns, including third-person and first-person plural pronoun use, have been widely used as measures of attentional focus on others. Broadly, the usage of these pronouns reflects an attention to others because the speaker is either (1) taking others' perspective into account (Hoover, Wood, & Knowles, 1983; Pennebaker, Mehl, & Niederhoffer, 2003; Polsinelli, Rentscher, Glisky, Moseley, & Mehl, 2020), (2) adopting a communal orientation (Austin & Costabile, 2017), and/or (3) because they are socially engaged (Mehl, Raison, Pace, Arevalo, & Cole, 2017; Pennebaker et al., 2003; Polsinelli et al., 2020; Smeesters, Wheeler, & Kay, 2009).

Within our context, we suggest that other-focus functions in a similar way.

Individuals may perspective take by imagining what another person might think or feel if they were present. Individuals may take a communal orientation by using solitude to feel “at one” with the universe. Finally, although in solitude, individuals might find themselves socially engaged by either remembering experiences with others, peoplewatching, or interacting with anthropomorphized non-human entities (e.g., pets, nature). By focusing consumers on others, solitary amusement will therefore be more socially connecting (compared to happy or emotion-neutral solitude).

3.1.2.2 Amusement vs. Happiness

Happiness (often called “joy” or “enthusiasm”) is a positive emotion that arises in safe and familiar contexts that require low effort (Fredrickson, 1998)—often when a person receives good news or a pleasant surprise (Fredrickson, 2013). It is associated with a desire for play and creativity (Fredrickson, 1998, 2013).

Although both happiness and amusement are high arousal positive emotions, happiness is distinct from amusement in both its elicitation and its action tendencies (Fredrickson, 1998, 2013). Happiness occurs in the presence of good news (i.e., an imminent improvement in resources) where amusement occurs in the presence of a benign violation (i.e., something bad or incongruous which can also be interpreted as non-threatening; Fredrickson, 1998; Shiota, Keltner, & John, 2006; Warren & McGraw,

2015). Happiness creates the urge to play or increase involvement with the eliciting stimulus. Amusement creates the urge to be jovial and continue the laugh (Fredrickson, 2013).

We chose happiness as our control condition for several reasons.

First, both amusement and happiness are high-arousal positive emotions (Fredrickson, 1998; Keltner & Cowen, 2021). It was important to us to expand beyond the literature comparing positive and negative solitude experiences (Lay et al., 2019; Long et al., 2003; Masi et al., 2011), to show meaningful variations in positive solitude experiences.

Second, and perhaps most importantly, happiness and amusement are mapped closely together in many taxonomies of positive emotion. In fact, they are often each other's closest neighbors (Cowen, Elfenbein, Laukka, & Keltner, 2019; Cowen, Sauter, Tracy, & Keltner, 2019; Weidman & Tracy, 2020). We therefore demonstrate that solitary amusement is socially connecting compared to both solitary happiness and an emotion-neutral control.

3.1.3 The Present Research

Our goal was to test two hypotheses: (1) Compared to solitary happiness, solitary amusement will be socially connecting, and (2) the effects of solitary happiness will be mediated other-focus. To address these hypotheses, we use four studies. Study 1 uses a

correlational design to demonstrate that individuals who feel solitary amusement more often report feeling less socially disconnected. Studies 2A, 2B and a within-paper meta-analysis ($N = 5326$) demonstrate this effect experimentally using recall studies.

Specifically, we show that consumers who recall experiences of solitary amusement (vs. solitary happiness and emotion-neutral control) report feeling less socially disconnected, and that this effect is mediated by other-focus. In the within-paper meta-analysis we explore moderators of the effect. Finally, in Study 3 we demonstrate that solitary consumers who are asked to find amusement (vs. happiness) during their solitary period report feeling less socially disconnected, an effect that is mediated by other-focus.

We did not have an a priori effect size to base our sample size on for the correlational study (Study 1). In the recall studies, we assumed an effect size of $d = .40$, leading us to recruit between 150 to 200 participants per cell. For the behavioral study (Study 3), we assumed a smaller effect size ($d = .30$) prompting us to recruit 300 participants per cell. In Study 1, we exclude participants who were unable to correctly describe one question they answered in the survey. In the remaining studies, we use participant's text responses to identify and exclude participants who are likely automated responders (e.g., posting text from the internet, writing repeated phrases, writing non-sensical responses like "good" or "very nice"). Additional pre-registered exclusion criteria were included in Study 3. All data were collected between January

2021 and June 2022, and all participants were paid \$0.15 for each estimated minute of their time (e.g., if a study was estimated to take 3 minutes, it paid \$0.45). We follow JARS (Kazak, 2018). All data, analysis code, and research materials are available at https://osf.io/3acfz/?view_only=0cea2f9d9327431cb81c168f0ea25803. Data were analyzed using R, version 4.0.2.

3.2 Study 1: Solitary Amusement is Socially Connecting

This study was pre-registered: https://aspredicted.org/WYH_T3C

3.2.1 Methods

Participants ($N = 300$) were recruited from Amazon's Mechanical Turk. As pre-registered, participants ($n = 25$) were excluded if they were unable to correctly describe one non-demographic question they answered in the study. The final sample was 275 participants (119 women, 152 men, 4 non-binary; $M_{age} = 38.78$, $SD = 11.78$, 208 White, 21 Black, 23 Asian, 13 Hispanic/Latino, 9 multiracial and 1 other).

Using a 7-point scale from 1(*strongly disagree*) to 7(*strongly agree*), participants completed a 3-item measure of solo amusement adapted from the Humor Styles Questionnaire (Martin et al., 2003): Even when I'm by myself, I'm often amused by the absurdities of life; If I'm by myself and I'm feeling unhappy, I make an effort to find something funny to cheer myself up; I don't need to be with other people to feel amused – I can usually find things to laugh about even when I'm by myself ($\alpha = .74$). Then,

participants indicated how often they feel socially disconnected using a 3-item scale (i.e., I feel distant from people, I don't feel related to anyone, I have lost my sense of connectedness with society; $\alpha = .93$) from 1(*never*) to 7 (*very often*). Finally, participants completed demographic measures and the open-ended automated responder check.

3.2.2 Results and Discussion

Participants who felt solo amusement more often reported feeling less socially disconnected, $B = -.23$, $SE = .09$, $p = .01$, $R^2 = .02$.

Although this result is encouraging, it is correlational. We cannot be sure that social disconnection does not lead to fewer moments of amusement. It is also not clear if any positive emotion (experienced alone) would have similar effects on social disconnection, or whether there is something unique to amusement. In subsequent studies, we experimentally compare solitary amusement to solitary happiness.

Going forward, we include enjoyment as a covariate. Specifically, we control for enjoyment if we observe differences between the focal conditions on their enjoyment of the experience. Engaging in enjoyable solitary experiences (e.g., gardening, shopping) has been associated with reduced social disconnection (Pettigrew & Roberts, 2008; Rane-Szostak & Herth, 1995). By controlling for enjoyment, we support our hypothesis that observed effects on social disconnection are driven by differences in the positive

emotions experienced, not merely differences in the average valence or intensity of these emotions. This control variable was pre-registered in all studies except 2A.

3.2 Study 2A: Amusement connects by prompting thoughts of others

3.2.1 Methods

Participants ($N = 300$) were recruited from Amazon's Mechanical Turk.

Following pre-registered exclusions ($n = 3$), the final sample was 297 participants (147 women, 148 men, 2 non-binary or self-described; $M_{age} = 40.71$, $SD = 12.17$, 238 White, 20 Black, 21 Asian, 12 Hispanic/Latino, 4 multiracial and 2 other).

Participants recalled a recent experience of amusement or happiness. Exact text can be found in Appendix B. In general, we asked people to recall a time that they made themselves happy or made themselves amused. In both conditions, we asked people to recall an experience that came up naturally (i.e., was not sought intentionally) and that was experienced alone.

Following the recall task, participants completed an exploratory measure of mindfulness that is not reported on further (see Appendix C). Then, participants recalled how socially disconnected they felt in that moment ($\alpha = .94$) using the same items as study 1 on a scale from 1 (*I did not feel this way at all*) to 7 (*I felt this way a lot*). Participants also completed a three-item measure of enjoyment (i.e., enjoyable, entertaining, boring; $\alpha = .64$) and a measure of serendipity (i.e., This moment was a good surprise, I feel lucky

to have experienced this moment, This moment was an unexpected discovery, I feel there was some element of chance in experiencing this moment; $\alpha = .82$).

3.2.2 Results

3.2.2.1 Manipulation Check

Participants reported enjoying the happiness experience more ($M = 6.21$, $SD = .87$) than the amusement experience ($M = 5.86$, $SD = 1.08$), $t(295) = 3.10$, $p = .002$, $d[95\%CI] = .36[.13, .59]$. They also reported that the happiness moment felt more serendipitous ($M = 5.42$, $SD = 1.35$) than the amusement moment ($M = 4.76$, $SD = 1.47$), $t(295) = 4.05$, $p < .001$, $d[95\%CI] = .47[.24, .71]$. Controlling for these differences does not meaningfully change results.

3.2.2.2 Social Disconnection

Participants in the happiness condition reported feeling more socially disconnected ($M = 2.46$, $SD = 1.73$) than participants in the amusement condition ($M = 1.98$, $SD = 1.31$), $t(295) = 2.64$, $p = .009$, $d[95\%CI] = .31[.08, .54]$.

3.2.2.3 Other Focus

To determine how other-focused participants were, we counted the number of times participants used pronouns that implied another person (i.e., he/his/him/himself, she/her/hers/herself, they/them/their/theirs/themselves, we/us/ours/our/ourselves). We scaled this count by dividing it by the overall word count of the participant's response.

Participants were significantly more other-focused in the amusement condition ($M = .04$, $SD = .04$) than in the happiness condition ($M = .02$, $SD = .03$), $t(295) = 4.86$, $p < .001$, $d[95\%CI] = .57 [.33, .80]$. The effect of condition on social disconnection was mediated by other-focus, $B[95\%CI] = .11[.02, .24]$.

3.2.2.4 Robustness Checks

Given the difference in other-focus, one may wonder if participants in the amusement condition were more likely to misunderstand the instructions and mention social interactions with other people. We ran the analysis again removing participants who reported a non-solitary experience ($n = 70$). Even with these participants removed, participants in the amusement condition ($M = 1.97$, $SD = 1.30$) felt less disconnected than people in the happiness condition ($M = 2.45$, $SD = 1.73$), $t(224.45) = 2.41$, $p = .02$, $d[95\%CI] = .31[.05, .58]$. Participants in the amusement condition also remained more other-focused condition ($M = .03$, $SD = .04$) than in the happiness condition ($M = .02$, $SD = .03$), $t(182.77) = 3.39$, $p < .001$, $d[95\%CI] = .47[.20, .74]$. Other-focus mediates the effect of condition on disconnection, $B[95\%CI] = .10[.01, .23]$.

One may wonder what “others” people in the conditions are mentioning. Table 6 includes quotes that characterize various ways of thinking of others. We will perform to a more fine-grained analysis of topics in the within-paper meta-analysis.

Table 6: Forms of other-focus

	Happiness	Amusement
Remembering Others	I was in the mall the other day and heard an old song, "Love Me Tender" by Elvis. It was my mom and dad's favorite song. They passed a few years ago but hearing that song made me pause to think about what a wonderful life they had. I smiled very big and felt a sense of closeness to my parents.	Recently, while viewing a picture of my young grandson, I remembered a day when he was climbing in the furniture that made me laugh. It was a humorous event for me that I enjoyed a lot.
Anthropomorphizing	Things that make me feel happy is watching the deer come down the mountain that is across the street and then they enter my yard. They don't realize I'm watching them and the eat the grass and the leaves off my trees. They are so adorable and they will stay until my dog barks at them and startles one of them . This brings me happiness even if it is just thinking about it.	Recently my dog didn't hear me come home and when he saw me walk through the bedroom door and feel off of the bed he was so excited.
Peoplewatching	A few days ago, I was on my way to work when I encountered a grandma with a baby. The baby was laughing and smiling at the lady every time she looked at him . It definitely made me happy to observe two different generations communicate happiness with no words needed.	I was walking down the street when I saw this lady talking on the phone and she walked into a pole. It was funny to me because she was too busy on her phone that she was not paying attention to where she was walking.

Although the results of Study 2A are promising, they do not allow us to disentangle whether amusement reduces feelings of social disconnection or happiness increases feelings of social disconnection. To ensure that amusement is indeed decreasing social disconnection, we replicated study 2A with the addition of an emotion-neutral condition.

3.3 Study 2B: The Inclusion of an Emotion-Neutral Control

This study was pre-registered: https://aspredicted.org/DVM_H91

3.3.1 Methods

Participants ($N = 600$) were recruited from Amazon's Mechanical Turk. As pre-registered, we excluded participants who answered gibberish or text pasted from the internet in response to the prompt ($n = 20$). The final sample was 580 participants (285 men, 289 women, 6 non-binary or self-described; $M_{age} = 40.69$, $SD = 12.92$, 400 White, 47 Black, 49 Asian, 29 Hispanic, 12 multiracial and 3 other).

Participants were assigned to recall a recent moment of amusement, happiness, or an emotion-neutral situation (“recall a recent time when you were driving in a car alone”). Six participants did not own cars and recalled solitary experiences on public transit. Amusement and happiness prompts were the same as those used in earlier experiments. The emotion-neutral can be found in Appendix B.

After responding to the prompt, participants completed the same measures of enjoyment ($\alpha = .78$) and social disconnection ($\alpha = .93$) as in Study 2A. We also ran the responses through the same program counting mentions of others.

3.3.2 Results

3.3.2.1 Enjoyment

Participants reported the highest enjoyment in the happiness condition ($M = 6.14$, $SD = .85$), followed by the amusement condition ($M = 5.76$, $SD = 1.01$) and then the neutral condition ($M = 4.33$, $SD = 1.48$), $F(2, 577) = 136.99$, $p < .001$, $\eta^2 = .32$. All conditions differed significantly from one another, all $t_s \geq 3.18$, all $p_s \leq .002$. As pre-registered, because the amusement and happiness conditions differed on enjoyment, we control for enjoyment in all analyses. Analyses not controlling for enjoyment are largely consistent, but the effect of the happiness vs. amusement contrast on social disconnection becomes marginal ($p = .11$).

3.3.2.2 Social Disconnection

Controlling for enjoyment, there was a significant effect of condition on feelings of social disconnection, $F(2, 576) = 12.40$, $p < .001$, $\eta^2 = .04$. Disconnection was highest in the emotion-neutral condition ($M = 3.35$, $SD = 1.77$), followed by the happiness condition ($M = 2.38$, $SD = 1.69$) and then the amusement condition ($M = 2.11$, $SD = 1.50$), all conditions differed significantly from one another, all $p_s \leq .04$.

3.3.2.3 Other-Focus

Controlling for enjoyment, we observed a significant effect of condition on other-focus, $F(2, 576) = 54.74, p < .001, \eta^2 = .16$. Participants were more other-focused in the amusement condition ($M = .034, SD = .038$) followed by the happiness condition ($M = .022, SD = .033$) and then the emotion-neutral condition ($M = .003, SD = .010$), all $ps \leq .006$. Using amusement as the referent condition, other-focus mediated the effect of the happiness condition ($B[95\%CI] = .09[.03, .17]$) and the emotion-neutral condition ($B[95\%CI] = .24 [.12, .37]$) on social disconnection.

3.4 Within-Paper Meta-Analysis

3.4.1 Primary Tests

We ran thirteen studies comparing happiness to amusement using a similar procedure to Study 2A and 2B. Across all studies, the happiness and amusement prompts were the same. We also included the same measure of social disconnection. These studies differed in whether they also included additional positive emotion conditions, and whether additional scales were included. We ran a within-paper meta-analysis comparing the effect of the amusement vs. happiness condition on both social disconnection and mentions of others controlling for study as a random factor ($N = 5326$). Participants felt less disconnected in the amusement condition ($M = 2.07, SD = 1.44$) than the happiness condition ($M = 2.41, SD = 1.65$), $b = 0.34, SE = .04, p < .001$.

Participants were also more other-focused in the amusement condition ($M = .04$, $SD = .04$) than the happiness condition ($M = .02$, $SD = .03$), $b = .01$, $p < .001$. Other-focus mediated the effect of condition on social disconnection, $B[95\%CI] = .08 [.06, .10]$.

3.4.2 Robustness Check

Across all studies, 1459 participants misunderstood the prompt and recalled non-solitary experiences. Removing these participants (remaining $n = 3867$) does not meaningfully change the results: Participants in the amusement condition felt less socially disconnected ($M = 2.09$, $SD = 2.51$) than participants in the happiness condition ($M = 2.51$, $SD = 1.69$), $b = .41$, $SE = .05$, $p < .001$. Participants in the amusement condition were also more other-focused ($M = .03$, $SD = .04$) than participants in the happiness condition ($M = .02$, $SD = .03$), $b = .02$, $SE = .001$, $p < .001$. Other-focus mediated the effect of condition on social disconnection, $b[95\% CI] = .06[.04, .09]$.

3.4.3 Moderation by Topic

As mentioned in Study 1, there are a variety of events participants mentioned in relation to the happiness or amusement recall prompt. Once non-solitary responses are removed, the remaining responses can broadly be grouped into six categories. Readers will note that both “imagined others” and “communal orientation” represent such small categories that they do not appear in both conditions in Study 1 responses (and are therefore not included in Table 6).

The first four categories represent largely social or pseudo-social interactions:

- (1) *Anthropomorphizing* ($n = 984$): Wherein participants report having a social interaction with an anthropomorphized non-human entity, like an animal, plant, or man-made object.
- (2) *Peoplewatching* ($n = 403$): Wherein participants report observing, but not interacting with, another person. For example, watching others in public or observing one's children without their knowledge.
- (3) *Imagined or Remembered Presences* ($n = 326$): In this category, we combine any instance wherein participants reported thinking of another person who was not physically present. This largely consisted of recalling a prior interaction with a person. A smaller number of participants imagined what another person would do in their situation (e.g., "My sister would find this hilarious").
- (4) *Adopting a Communal Orientation* ($n = 52$): Wherein participants report feeling "at one" with a larger group of people, like their community, country, or the world.

The final two categories are non-social:

- (5) *Self* ($n = 931$): Wherein participants report finding amusement or happiness because of their own actions (e.g., laughing at one's mistakes, being happy in one's achievements).
- (6) *Other Non-social* ($n = 1170$): All other instances of non-social interactions are included within this category. For example, some participants might recall positive emotions in response to weather, music, or food.

Looking first at moderation of the effect of condition on disconnection, I present regression results and a robustness check (Table 7). First, I run six individual regressions which tested each topic individually and used all other topics as the referent (e.g., anthropomorphism vs. everything else). This analysis strategy allows us to focus on one topic in comparison to all the others. However, it does not allow us to include all topics in a single regression. As a robustness check, I run a *combined* regression which specifies the "other non-social" condition as the referent condition and compares each topic to the referent. Although this strategy nicely controls for the other topics, using the non-social group as the referent condition inherently compares pseudo-social with non-social interactions. It is possible that any observed interactions are therefore due to this comparison, rather than the specific properties of the type of pseudo-social interaction. Results are directionally consistent across both the primary regression and the

robustness check. Results for the primary six regressions are discussed below. A

regression table running a similar analysis on other-focus can be found in Appendix D.

Table 7: Moderating the effect of Condition on Disconnection by Topic

	Combine d	Anthro- pomor- phism	People- watch	Presences	Communal	Self	Non- Social
Condition	-0.43**	-0.32***	-0.47***	-0.47***	-0.42***	-0.49***	-0.21***
Anthropo- morphizing	-0.13	0.14					
People- watching	-1.09***		-0.91***				
Presences	-0.85***			-0.67***			
Communal	-0.54*				-0.31		
Self	-0.38***					-0.17	
Other Non- Social							0.45***
Condition x Anthropo- morphizing	-0.22	-0.33**					
Condition x People- watching	0.88***		0.91***				
Condition x Presences	0.58*			0.62**			
Condition x Communal	-0.43				-0.45		
Condition x Self	0.26					0.31*	
Condition x Non-social							-0.22
Random	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Effect of Study							
Observations	3867	3867	3867	3867	3867	3867	3867

Note. *p<.05, **p<.01, ***p<.001

I observe significant condition by topic interactions for four of the six topics: anthropomorphism, peoplewatching, imagined/remembered presences, and self (see Fig. 2).

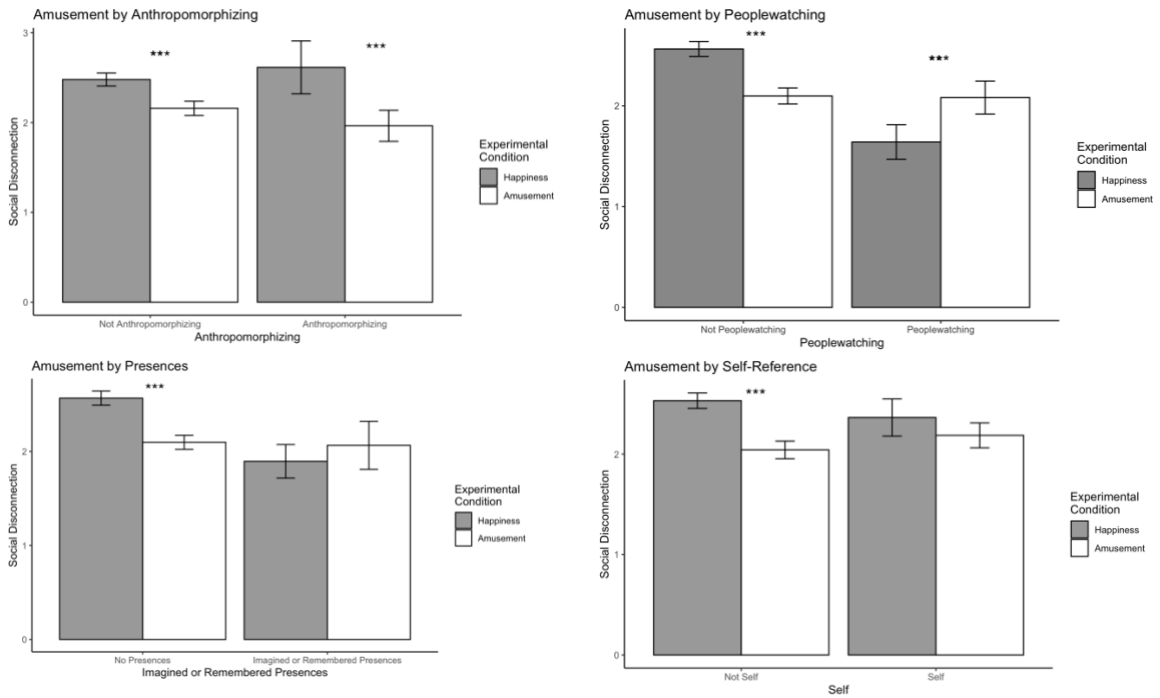


Figure 2: Graphed Topic by Condition Interactions

3.4.3.1 Anthropomorphism

The effect of amusement (vs. happiness) on disconnection was larger when participants reported anthropomorphizing than when they did not. Among participants who anthropomorphized non-human entities, those in the amusement condition ($M = 1.96, SD = 1.42$) reported feeling less disconnected than those in the happiness ($M = 2.61, SD = 1.75$) condition, $t(867.29) = 6.33, p < .001, d[95CI] = .41[.28, .54]$. This effect was attenuated, although still significant, when participants did not report

anthropomorphizing ($M_{amused} = 2.16$, $SD_{amused} = 1.48$; $M_{happy} = 2.48$, $SD_{happy} = 1.67$), $t(2550.10) = 5.38$, $p < .001$, $d[95CI] = .20[.12, .28]$.

This occurred because people who anthropomorphized entities reported a relatively larger discrepancy in other-focus between the amusement ($M = .055$, $SD = .039$) and happiness ($M = .040$, $SD = .036$) conditions, $t(981.18) = 6.18$, $p < .001$, $d[95CI] = .39[.26, .52]$, than participants who did not anthropomorphize ($M_{amused} = .019$, $SD_{amused} = .029$; $M_{happy} = .009$, $SD_{happy} = .020$), $t(1707.10) = 9.42$, $p < .001$, $d[95CI] = .40[.32, .47]$. The indirect effect through mentions of others was significantly different between those who anthropomorphized, $B[95CI] = .05 [.03, .07]$, and those who did not, $B[95CI] = .08 [.05, .11]$, *Index of Moderated Mediation* = $.028[.002, .060]$.

We therefore suggest that amused individuals are more focused on the anthropomorphized entity than happy individuals, leading them to feel less disconnected. It is important to note that anthropomorphism exists on a spectrum from low (e.g., watching birds on a birdfeeder) to high (e.g., noticing a dog snoring just like a person would). The more an entity's behavior deviates from the norm, the more anthropomorphized it becomes (Waytz, Gray, Epley, & Wegner, 2010). Because amusing occurrences definitionally contain a norm-deviation (Warren & McGraw, 2015), it is likely that participants in the amusement condition anthropomorphized their non-human companions to a greater extent than participants in the happiness condition. This

difference in the extent to which the entity seems human, could explain the observed differences in other-focus and downstream disconnection.

3.4.3.2 Peoplewatching

Among participants who recalled an instance of peoplewatching, the effect of emotion on disconnection reversed such that participants in the happiness condition reported feeling less disconnected ($M = 1.64$, $SD = 1.02$) than participants in the amusement condition ($M = 2.08$, $SD = 1.35$), $t(349.69) = 3.68$, $p < .001$, $d[95CI] = .35[.15, .56]$. Among those who did not report peoplewatching, participants in the amusement condition ($M = 2.10$, $SD = 1.49$) felt less disconnected than those in the happiness condition ($M = 2.56$, $SD = 1.71$), $t(3199.00) = 8.50$, $p < .001$, $d[95CI] = .29[.22, .36]$. However, peoplewatching did not moderate either the a-path, *Index of Moderated Mediation* = .02 [- .01, .05], or b-path, *Index of Moderated Mediation* = -.002 [-.06, .05], of the proposed mediation model through other-focus.

Based on these results, peoplewatching does not moderate the effect by influencing *how much* consumers think of others. However, it is possible that peoplewatching influences disconnection by changing the valence (rather than the amount) of individuals' other-focused thoughts. Specifically, individuals who are amused by peoplewatching may be laughing *at* others (i.e., negatively valenced thoughts of others), while individuals who are made happy may be happy *for* or *because*

of others (i.e., positively valenced thoughts of others). Finding amusement at the expense of another person is not socially connecting (Martin et al., 2003).

3.4.3.3 Imagined and Remembered Presences

The effect was attenuated for participants who reported instances where they imagined or recalled another person. Among participants who imagined/remembered another person, those in the happiness condition ($M = 1.90$, $SD = 1.29$) were no more disconnected than those in the amusement condition ($M = 2.06$, $SD = 1.43$), $t(236.69) = 1.08$, $p = .28$, $d[95CI] = .13[-.10, .35]$. Among participants who did not recall an experience involving an imagined or remembered other, we replicate the primary effect such that those in the amusement condition report feeling less disconnected ($M = 2.10$, $SD = 1.47$) than those in the happiness condition ($M = 2.57$, $SD = 1.71$), $t(3472.00) = 8.78$, $p < .001$, $d[95CI] = .29[.22, .36]$.

Surprisingly, this occurred *not* because participants in the happiness condition were more focused on others when they imagined or remembered them ($M = .016$, $SD = .02$) than when they did not ($M = .016$, $SD = .03$), $t(254.53) = .47$, $p = .64$, $d[95CI] = .03[-.11, .18]$. Rather, relative to other occurrences of amusement ($M = .031$, $SD = .04$), participants who recalled or imagined others were less other focused ($M = .024$, $SD = .03$), $t(171.77) = 2.62$, $p = .01$, $d[95CI] = .19[.01, .37]$. The indirect effect through mentions of others was different between those who imagined or remembered others $B[95CI] = .03 [.01, .06]$, and

those who did not, $B[95CI] = .07 [.04, .09]$, although it did not reach conventional levels of significance, *Index of Moderated Mediation* = .033[-.001, .071].

The reference condition is critical in understanding why individuals in the amusement condition are relatively less other-focused when imagining or remembering others. For participants in the amusement condition, the majority (53%) of instances in the reference condition are pseudo-social interactions with an entity that is physically present (i.e., anthropomorphizing, peoplewatching). As a sidenote, this is not the case in the happiness condition wherein only 32% of the reference condition is pseudo-social. Relative to pseudo-social interactions, imagining or remembering others may feel less concrete and result in lower other-focus. Indeed in a regression predicting other-focus where only non-social instances are used as the reference condition, there is not a significant interaction between condition and imagined/remembered presences (see Appendix D).

3.4.3.4 Self-Referent Emotions

The effect was attenuated for participants who found happiness or amusement in their own actions. Among participants who recalled positive emotions in reference to the self, participants in the amusement condition ($M = 2.18, SD = 1.54$) felt no less disconnected than those in the happiness condition ($M = 2.36, SD = 1.67$), $t(603.73) = 1.58, p = .11, d[95CI] = .11[-.02, .25]$. Among those who did not recall a self-referent experience,

we observe an effect of amusement (vs. happiness) on disconnection, ($M_{amused} = 2.04$, $SD_{amused} = 1.41$; $M_{happy} = 2.53$, $SD_{happy} = 1.69$), $t(2431.90) = 8.34$, $p < .001$, $d[95CI] = .31[.23, .38]$.

This occurred because, although still significantly different, the discrepancy in other-focus between the happiness ($M = .004$, $SD = .012$) and amusement conditions ($M = .007$, $SD = .015$) was greatly attenuated for participants who made themselves amused or happy, $t(929) = 2.81$, $p = .003$, $d = .19[.06, .33]$. Among participants who did not report happiness or amusement resulting from their own actions, participants in the amusement condition were much more other-focused ($M = .045$, $SD = .039$) than participants in the happiness condition ($M = .018$, $SD = .028$), $t(2934) = 21.76$, $p < .001$, $d = .84[.76, .92]$. The indirect effect through mentions of others was significantly different between those who made themselves amused or happy, $B[95CI] = .012 [.004, .022]$, and those who did not, $B[95CI] = .13 [.08, .17]$, *Index of Moderated Mediation* = $.113[.072, .156]$.

When individuals self-elicited feelings of amusement or happiness, there was no difference in social disconnection. This finding is congruent with the proposed mechanism. Namely, because consumers are focused on themselves as the source of positive emotion, self-elicited amusement (vs. happiness) does not result in a higher level of other-focus. In fact, for self-elicited emotions, we observe a floor effect on other-focus such that participants in both the happiness and amusement condition focus very little on others in their recollections.

3.4 Study 3: An Intervention to Reduce Social Disconnection in Solitude

Results from the recall studies show promising evidence that amusement leads to lower social disconnection compared to happiness. However, they cannot speak to whether amusement can be used as an intervention to reduce social disconnection. It is possible that the emotions elicited in the recall are confounded with other variables, for example time since the incident or salience of the memory. Furthermore, it is unclear if purposefully elicited amusement works in the same way as recalled amusement; trying to think of something funny may feel more effortful and less authentic than recalling the past. Given the importance of interventions to reduce social disconnection, we examine whether prompting participants to pause and find amusement (vs. happiness) in their situation makes them feel more socially connected.

This study was pre-registered: https://aspredicted.org/XW8_GY1

3.4.1 Methods

Participants ($N = 900$) were recruited from Prolific. As pre-registered, participants were excluded based on three criteria indicating that they did not perform the task as instructed. First, participants were excluded if they self-reported not following instructions ($n = 52$). Second, participants were excluded if they spent 30 seconds or more on the page immediately following the thinking period, indicating that

they likely were not attending to the screen ($n = 65$). Third, participants were excluded if they spent more than two minutes off-task (e.g., in a different browser window) during the entire experiment ($n = 29$). The final sample was 754 participants (388 male, 351 female, 14 non-binary, 1 self-described; $M_{age} = 41.55$, $SD = 14.87$; 609 White, 41 Black, 53 Asian, 30 Hispanic/Latino, 2 Native American, 4 multi-racial and 15 other)

In this experiment, participants were instructed to sit in solitude for two minutes. Specifically, we told participants “*In this study, we will ask you to sit still for 2 minutes and do nothing. This means you will not complete other work, look at your cell phone, move around, talk to someone else, or listen to music.*” Then, we instructed participants on what to think about during this period. Depending on condition, participants were instructed to find amusement or happiness (i.e., “*For the next 2 minutes, please try to find [humor/happiness] in your situation. You can think about things in your surroundings, your current situation, or your memories. Just try to make yourself [smile or laugh/feel good]*”). We also included an emotion-neutral control condition (i.e., “*Please think about whatever you want*”). During the thinking period, participants viewed a screen with a two-minute countdown timer and a brief reminder of their condition-specific instructions.

The screen auto-advanced when the timer ran out. The following screen simply instructed them to click “next.” The simplicity of this page was intentional, allowing us

to exclude participants who spent 30 seconds or more looking on the page (indicating that they had likely walked away from their screen).

Participants completed the same measure of social disconnection as prior studies ($\alpha = .91$). In an open-ended text box, they described what they thought about during the thinking period. Participants' responses to this question were coded for other-focus using the same method as prior studies. Next, participants completed the same measure of enjoyment as in prior studies ($\alpha = .85$) and a manipulation check asking them how amused and happy they were during the thinking period ("To what extent did the thing you thought about... make you feel amused, make you feel happy) on a scale from 1 (*not at all*) to 7 (*very much*). Finally, participants were given the opportunity to self-report not following instructions and completed demographic information.

3.4.2 Results

3.4.2.1 Manipulation Checks

Participants reported feeling more amused in the amusement condition ($M = 5.18, SD = 1.66$) than in the happy ($M = 3.84, SD = 1.81$) or emotion-neutral condition ($M = 2.88, SD = 1.73$), $F(2, 751) = 110.50, p < .001, \eta^2 = .23$. Each condition differed significantly from the others, all $ps < .001$. Similarly, participants in the happiness condition reported feeling happier ($M = 5.44, SD = 1.60$) than participants in the amusement ($M = 4.86, SD =$

1.81) or the neutral ($M = 3.71$, $SD = 2.00$) condition, $F(2, 751) = 59.94$, $p < .001$, $\eta^2 = .14$. Each condition differed significantly from the others, all $ps < .001$.

3.4.2.2 Enjoyment

We observed a significant effect of condition on enjoyment, $F(2, 751) = 22.08$, $p < .001$, $\eta^2 = .06$. Specifically, participants in the neutral condition enjoyed the experiment less ($M = 3.84$, $SD = 1.55$) than participants in the happiness ($M = 4.73$, $SD = 1.49$) or amusement ($M = 4.51$, $SD = 1.65$) conditions, both $ps < .001$. As expected, the happiness and amusement conditions did not differ, $p = .25$.

3.4.2.3 Disconnection

We observed a significant effect of emotion condition on feelings of disconnection, $F(2, 751) = 3.08$, $p = .047$, $\eta^2 = .01$. Post-hoc tests revealed that participants in the amusement condition reported less disconnection ($M = 2.47$, $SD = 1.54$) than participants in the happiness condition ($M = 2.83$, $SD = 1.68$), $p = .036$. The emotion neutral condition ($M = 2.63$, $SD = 1.66$) fell in between the happiness and amusement conditions and did not significantly differ from either, both $ps \geq .37$.

3.4.2.4 Other-Focus

Condition significantly affected participants' other-focus, $F(2, 751) = 11.98$, $p < .001$, $\eta^2 = .03$. Participants in the amusement condition ($M = .024$, $SD = .034$) were more other-focused than participants in the happiness condition ($M = .014$, $SD = .026$) or the

emotion neutral condition ($M = .012$, $SD = .025$), both $ps < .001$. The happiness and neutral condition did not differ, $p = .71$. We observed a significant indirect effect of condition on disconnection through other-focus for both the amusement-happiness contrast, $B[95\%CI] = .036[.002, .079]$, and the amusement-neutral contrast, $B[95\%CI] = .051[.005, .106]$.

3.5 General Discussion

The objective of this research was to understand whether experiences of solitary amusement decrease social disconnection. The results of study 1 show that individuals who experience more solitary amusement report feeling less socially disconnected in general. Studies 2A, 2B and a within-paper meta-analysis demonstrate this effect experimentally. Specifically, individuals who recall an experience of solitary amusement (vs. solitary happiness or emotion-neutral solitude) recall feeling less socially disconnected in that moment. Importantly, this effect was driven by other-focus. The salutary effect of amusement was strengthened when participants recalled interactions with anthropomorphic entities and dampened when participants' positive emotions were elicited by the self, people-watching, or imagined/remembered others. Study 3 demonstrates that amusement can be used as an intervention to reduce social disconnection. Individuals were randomly assigned to spend two minutes in solitude thinking about things that make them amused, happy or an emotionally neutral control.

Participants in the amusement condition reported feeling less socially disconnected than people in the happiness condition. The effect was again driven by other-focus.

3.5.1 Contributions

Through four experiments, the current research aims to contribute to the literatures on social disconnection, solitude, and amusement.

First, we examine ways to reduce felt social disconnection that do not rely on reducing solitude. For many individuals, reducing time spent in solitude is difficult or infeasible. Almost half of Americans report having three or fewer friends, a condition only aggravated by the COVID-19 pandemic wherein most Americans reported losing touch with at least a few friends (Cox, 2021). Given that reducing solitary time may be difficult, it is important to examine strategies that make solitude less socially disconnecting. Prior work has identified cognitive therapy as an effective intervention to reduce social disconnection (Masi et al., 2011). However, this form of therapy is often administered by a licensed therapist and may not be feasible or appropriate for individuals who are not experiencing chronic or clinical levels of loneliness (Masi et al., 2011). We demonstrate that simply finding ways to laugh may relieve feelings of social disconnection for individuals in solitude.

Second, we contribute to the literature on positive solitude experiences. Prior work on positive solitude experiences has been largely descriptive (Koch, 1994; Long &

Averill, 2003; Nisenbaum, 1984), and treated positive solitude as a monolithic experience separate from negative solitude (Larson, 1990; Lay et al., 2019). We contribute to this literature by experimentally testing whether the experience of specific positive emotions influences the positive solitude experience. In doing so, we provide empirical support to the idea that solitude varies in how socially (dis)connecting it feels, and that this variation is (at least in part) caused by the specific positive emotions experienced.

Third, we contribute to the literature on amusement as a discrete positive emotion. Amusement is largely conceptualized as a social emotion—an emotion experienced as a result of social interaction with others (Flamson & Barrett, 2008; Fredrickson, 2013; Li et al., 2009; Shiota, Campos, Keltner, & Hertenstein, 2004). However, the current working theory of comedy—the benign violation theory (McGraw & Warren, 2010; Warren & McGraw, 2015) does not require a social stimulus. In this paper, we demonstrate instances of amusement without a social stimulus (including media). We also demonstrate that amusement, even when experienced in solitude, still serves a social function. Solitary amusement still prompts individuals to think of others, and as such makes them feel more socially connected than other solitary positive emotions.

3.5.2 Limitations and Future Directions

The current research also has several limitations that deserve attention and future research. For example, across all studies we compare amusement to happiness (or emotion-neutral control). Happiness is the most appropriate control, as it is the positive emotion most similar to amusement (Cowen, Elfenbein, et al., 2019; Cowen, Sauter, et al., 2019; Weidman & Tracy, 2020). However, this limits our ability to draw inferences about amusement's efficacy compared to other positive emotions like excitement, pride, interest, or serenity. Future research may wish to compare solitary experiences of a wider variety of positive emotions. Similarly, future research is needed to examine the long-term efficacy of amusement interventions on social disconnection. In study 3, we demonstrate that participants instructed to feel amusement (vs. happiness) during a two-minute solitary period report feeling less disconnected. However, we do not know if amusement is an effective intervention to reduce social disconnection over time, or whether its effects wane.

3.5.3 Concluding Remarks

There is an epidemic of social disconnection in the United States (Health Resources & Services Administration, 2019). Given that it may be prohibitively difficult to reduce the time Americans spend in solitude, this paper explores a strategy to reduce feelings of disconnection without reducing time spent in solitude. Namely, we

demonstrate that consumers who feel amused while alone feel less socially disconnected than consumers experiencing other positive emotions (i.e., happiness).

4. Conclusion

In my dissertation, I present two essays demonstrating how humor can be used to facilitate social connections. In essay 1, I show that clever humor is particularly effective at facilitating relationships between consumers and brands. In essay 2, I show that amusement can make solitude feel less socially disconnecting.

Appendix A

Table A 1: Regressions assessing the interaction of cleverness and funniness

	S1 Log Fav:	S1 Log Replies	S1 Log Retweets	S3 ABr	S4 ABr	S5 ABr
Cleverness	.004*** (.001)	.003*** (.001)	.003*** (.001)	.568*** (.050)	.982* (.042)	.390*** (.069)
Funniness	.002 (.001)	.000 (.001)	-.001 (.001)	.444*** (.059)	-1.92** (.619)	.385*** (.056)
Clever x Funny	.000 (.000)	.000 (.000)	000 (.000)	- .042*** (.011)	.225 (.165)	-.041*** (0.10)
Brand Dummies	Yes	Yes	Yes	Yes	No	Yes
Random Effects	N/A	N/A	N/A	Ad	Ad, Subjects	Ad
Observations	4461	4461	4461	932	6000	973
R2	.563	.422	.562	.575	.331	.546

Appendix B

Table B 1: Manipulations for studies in Essay 2

Condition	Text	Studies
Amusement	<p>Please try to recall a recent time when you made yourself amused. Specifically, a time when you thought, did, or saw something that was a little funny.</p> <p>Please think about moments of amusement or levity that came up naturally (e.g., noticing something funny, laughing at yourself), not things that were intentionally funny (e.g., comedy routines, memes, joking with friends).</p> <p>Try to think of things that you alone experienced; other people could be present, but they shouldn't be "in" on the joke.</p>	Studies 2A, 2B & meta-analysis
Happiness	<p>Please try to recall a recent time when you made yourself made yourself happy. Specifically, a time when you thought, did, or saw something that gave you a warm feeling.</p> <p>Please think of moments of happiness that came up naturally (e.g., noticing the first signs of spring, singing in the shower), not things that are intentionally happiness-inducing (e.g., a day at the spa, feel-good movies).</p> <p>Try to think of things that you alone experienced; other people could be present, but they shouldn't be "in" on the feeling.</p>	Studies 2A, 2B & meta-analysis
Neutral	<p>Please try to recall a recent time when you were driving in a car alone.</p> <p>Please think of a moment that felt normal, not a time that was particularly positive (e.g., driving a new car, driving on vacation) or negative (e.g., getting in an accident, being caught in bad traffic).</p>	Study 2B & meta-analysis

Try to think of things that you alone experienced; no one else should be in the car with you.

If you don't drive, you can think of a time you took public transit. However, please think of a time when you did not interact with others around you.

Appendix C

The mindfulness measure used in Study 2A read as follows, and was rated on a scale from 1 (*not at all*) to 7 (*very much*).

In this moment, to what extent did you feel like...

- I “got out of my head”
- I was present in the moment
- I “got off my high horse”
- The moment gave me perspective
- I was reminded not to take myself too seriously

Results

Participants in the amusement condition reported marginally lower mindfulness ($M = 4.64$, $SD = 1.21$) than participants in the happiness condition ($M = 4.91$, $SD = 1.18$), $t(289.01) = 1.93$, $p = .055$, $d[95CI] = .23$ [.00, .45].

Appendix D

Table D 1: Moderation of the effect of condition on other-focus

	Combined	Anthropomorphism	People-watch	Presences	Communal	Self	Non-Social
Condition			0.013**				
Anthropomorphizing	0.008**	0.009***	*	0.016***	0.015***	0.027***	0.007***
Peoplewatching	0.034***	0.031***					
Presences	0.032***		0.024**				
Communal	0.01***		*	0.001			
Self	0.004***				-0.006		
Other Non-Social	-0.002					-	
						0.013***	
Condition x Anthropomorphizing							-
Condition x Peoplewatching	0.007*	0.005*					0.019***
Condition x Presences	0.001		-0.004				
Condition x Communal	-0.001			-0.008*			
Condition x Self	-0.004				-0.011		
Condition x Non-social	-0.005					-	
						0.025***	
Random Effect of Study	Included	Included	Included	Included	Included	Included	Included
Observations	3867	3867	3867	3867	3867	3867	3867

Note. ^ψ $p < .10$ * $p < .05$, ** $p < .01$, *** $p < .001$

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Biography

Holly Howe received an Honors Bachelor of Science in Psychology from McMaster University in 2014 and a Master of Science in Kinesiology from the University of Toronto in 2016. In her Master's degree, Holly was funded by SSHRC (Canadian Graduate Scholarship and the Storytellers Award), the Ontario Graduate Scholarship and the Mary H. Beatty Fellowship. For her doctoral work, Holly was chosen as the AMA Sheth Consortium Fellow for 2020. Holly has published articles in *The Journal of Consumer Psychology* ("Aha vs. haha: Brands benefit more from being clever than from being funny"), *Psychological Science* ("Anger damns the innocent: The paradox of anger in false accusations of wrongdoing"), *Psychology and Marketing* ("Being there without being there: Gifts compensate for lack of in-person support"), and *The Journal of the Association of Consumer Research* ("Open Science Online Grocery: A tool for studying choice context and food choice"). Holly has eight additional publications pertaining to physical health and biology.