26th Annual

Robert Mittelstaedt Doctoral Symposium Proceedings

March 30 – April 1, 2017

Doctoral Research in Marketing

Department of Marketing
University of Nebraska–Lincoln
310 College of Business Administration
Lincoln, NE 68588-0492
Office: (402) 472-2316
Fax: (402) 472-9777

Symposium Coordinators
Abby Nappier Cherup
Danielle McRell

Faculty Coordinators
Dr. Meike Eilert
Dr. Jamie Hyodo

Proceedings Coordinators
Michelle Jacobs
Jackson Setter
ACKNOWLEDGEMENT

The Marketing Department would like to thank the Executive Vice Chancellor & Chief Academic Officer Donde Plowman and Interim Dean Kathy Farrell and the Dean's Office in the College of Business Administration for the partial financial support for this symposium. We also thank Michelle Jacobs for all of her assistance in organizing the symposium.

ROBERT MITTELSTAEDT DOCTORAL SYMPOSIUM

"The word “symposium” comes from the Greek word “symposion” which, in turn, derives from the Greek verb “sympeninein” which means to drink together. The Merriam Webster dictionary defines symposium as “a convivial party with music and conversation” or “a social gathering at which there is free interchange of ideas.” While the music may be in short supply, I trust that all of you – and especially those of you for whom this is your first time at a meeting like this – find this symposium both intellectually stimulating and socially rewarding. So, again, welcome to the Robert Mittelstaedt Doctoral Symposium."

- Robert Mittelstaedt

Dr. Robert Mittelstaedt retired on August 31, 2002, after 29 years of contributions to the University of Nebraska–Lincoln, College of Business Administration, Marketing Department and our graduate program.

Doctoral students share a common link to Bob. He was more than a fine educator, scholar, and academic citizen. He was also their mentor, friend, counselor, and supporter. He motivated them with his insights, kindness, and countless stories. He stimulated their ideas, made them smile, and warmed their spirits. In addition, Bob and Venita opened their home and hearts to many doctoral students and gave them many forms of moral support. Bob dedicated his career to doctoral education and has served as a role model to both doctoral students and junior faculty.

Bob also introduced macromarketing theory and issues to doctoral students and inspired them, for over 40 years. He has been more than a fine educator and scholar. His insights, seminars, and dedication to the Journal of Macromarketing and Macromarketing Conferences motivated their investigations of important issues in the field, presentations at the Conferences, and publications in JMM.

Despite being retired, Bob was lured back to the department for the 2004 and 2005 fall semesters to teach doctoral seminars.

At the time of Bob’s retirement, the faculty in the Department of Marketing decided to rename the Nebraska Doctoral Symposium to the Robert Mittelstaedt Doctoral Symposium in honor of Bob’s accomplishments at the University of Nebraska–Lincoln.
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PROGRAM

26TH ANNUAL ROBERT MITTELSTAEDT DOCTORAL SYMPOSIUM
MARCH 30 – APRIL 1, 2017

THURSDAY, MARCH 30 – AFTERNOON

Guests check in at the Courtyard by Marriott Lincoln Downtown, 808 R Street, (402) 904-4800

THURSDAY, MARCH 30 – EVENING (DRESS CASUALLY)

7:00 - 10:00 Welcome Reception and Cocktail Party
    Van Brunt Visitors Center, 313 North 13th Street
    Finger-foods will be served

FRIDAY, MARCH 31 – MORNING (DRESS PROFESSIONALLY)
    LOCATION: SCARLET BALLROOM

7:00 – 8:00 Breakfast available for guests staying at the Courtyard

7:45 – 8:00 Welcome
    Dr. Meike Eilert, Mittelstaedt Doctoral Symposium Coordinator
    Dr. Kathy Farrell, Dean, College of Business Administration

8:00 – 8:30 Is My Failure Your Problem? Examining Carryover Effects of Prior Consumer Failure on Customer Satisfaction
    Matt Hall, University of Nebraska–Lincoln

8:30 – 8:40 Discussant: Ashley Deutsch, University of Arkansas

8:40 – 8:50 General Discussion

8:50 – 9:00 Break

9:00 – 9:30 Exploring the Role of Creative Engagement on Donation Behavior
    Lidan Xu, University of Illinois at Urbana Champaign

9:30 – 9:40 Discussant: Abby Nappier Cherup, University of Nebraska–Lincoln

9:40 – 9:50 General Discussion

9:50 – 10:00 Break

10:00 – 10:30 Repair and the Fragility of Object Life
    Matt Godfrey, University of Arizona

10:30 – 10:40 Discussant: Taegyu Hur, The Ohio State University

10:40 – 10:50 General Discussion
10:50 – 11:00  Break
11:00 – 11:30  Technocraft: The Artworlds of Consumer Culture  
Brandon McAlexander, University of Arkansas
11:30 – 11:40  Discussant: Yuan Wen, Washington State University
11:40 – 11:50  General Discussion
11:50 – 1:00  Lunch in the Bistro area, Courtyard

FRIDAY, MARCH 31 – AFTERNOON
SESSION ONE
LOCATION: SCARLET NORTH

1:00 – 1:30  The Impact of Mobile App Adoption on Consumer Purchase  
Xian Gu, University of Maryland
1:30 – 1:40  Discussant: Jingcun Cao, Indiana University
1:40 – 1:50  General Discussion
1:50 – 2:00  Break
2:00 – 2:30  Benefit Formation and Enhancement  
Hyowon Kim, The Ohio State University
2:30 – 2:40  Discussant: Jason Bell, University of Iowa
2:40 – 2:50  General Discussion
2:50 – 3:00  Break
3:00 – 3:30  A Theoretical Framework for Studying the Impact of Outdoor Atmospherics in Retailing  
Omid Kamran-Disfani, University of Missouri-Columbia
3:30 – 3:40  Discussant: Cristian Maldonado, University of Wyoming
3:40 – 3:50  General Discussion
3:50 – 4:00  Break
4:00 – 4:30  Why Do Frontline Employees Speak Up on Behalf of Customers? The Influence of Supervisors Versus Coworkers and the Role of Intrapersonal Factors  
Gabriel Gazzoli, Oklahoma State University
4:30 – 4:40  Discussant: Li Chen, University of Missouri-Columbia
4:40 – 4:50  General Discussion
FRIDAY, MARCH 31 – AFTERNOON
SESSION TWO
LOCATION: SCARLET SOUTH

1:00 – 1:30 The Effect of Social Identity Threat on Consumer Preference for Name (vs. Generic) Brands
Frank Cabano, University of Kansas

1:30 – 1:40 Discussant: Adi Singh, Oklahoma State University

1:40 – 1:50 General Discussion

1:50 – 2:00 Break

2:00 – 2:30 When Nostalgic Advertising Backfires: Understanding the Role of Youthfulness in Nostalgic Advertising
Young Kyu Kim, University of Iowa

2:30 – 2:40 Discussant: Rusty Stough, University of Wisconsin-Madison

2:40 – 2:50 General Discussion

2:50 – 3:00 Break

3:00 – 3:30 How Anger and Anxiety Influence Choice in Self-Control Dilemmas
Shruti Koley, Texas A&M University

3:30 – 3:40 Discussant: Luxi Chai, University of Kansas

3:40 – 3:50 General Discussion

3:50 – 4:00 Break

4:00 – 4:30 The Meaning of Materializing Thoughts into Physical Objects Impacts Evaluations
Tae Woo Kim, Indiana University

4:30 – 4:40 Discussant: Mengzhou Zhuang, University of Illinois at Urbana-Champaign

4:40 – 4:50 General Discussion

FRIDAY, MARCH 31 – EVENING (DRESS CASUALLY)
LOCATION: SCARLET BALLROOM

6:30 – 9:00 Evening Reception and Banquet
6:30 - Social
7:00 - Banquet

9:00 On your own
SATURDAY, APRIL 1 – MORNING (DRESS PROFESSIONALLY)
LOCATION: SCARLET BALLROOM

7:00 – 8:00  Breakfast available for guests staying at the Courtyard

8:00 – 8:30  **The Effects of Perceived Scarcity on Financial Decision-Making**
Raika Sadeghein, West Virginia University

8:30 – 8:40  Discussant: Brady Hodges, Texas A&M University

8:40 – 8:50  General Discussion

8:50 – 9:00  Break

9:00 – 9:30  **Increasing Incentive Effectiveness by Linking the Incentive to a Source the Consumer Paid Into**
Zoe Lu, University of Wisconsin-Madison

9:30 – 9:40  Discussant: Pushpinder Gill, Iowa State University

9:40 – 9:50  General Discussion

9:50 – 10:00  Break

10:00 – 10:30  **Princesses & Cupcakes: How Food is Portrayed in Cartoons and It’s Impact on Consumption**
Eric Setten, University of Oregon

10:30 – 10:40  Discussant: Teng Fei, Iowa State University

10:40 – 10:50  General Discussion

10:50 – 11:00  Break

11:00 – 11:30  **“The Baggage We Carry”: Experiential Consumption as Path to Anti-Materiality**
Eric Krszjanek, University of Wyoming

11:30 – 11:40  Discussant: Lixun Su, West Virginia University

11:40 – 11:50  General Discussion

11:50 – 12:00  Closing
26th Annual Robert Mittelstaedt Doctoral Symposium Participants
March 30 – April 1, 2017

Dr. Bikram Ghosh
University of Arizona
Eller College of Management
McClelland Hall 320, 1130 E. Helen St.
Tucson, AZ 85721-0108
(520) 626-3372
bghosh@email.arizona.edu

Dr. Ravi Mehta
University of Illinois at Urbana-Champaign
Department of Business Administration
350 Wohlers Hall, 1206 South Sixth St.
Champaign, IL 61820
(217) 265-4081
mehtar@illinois.edu

Mr. Matt Godfrey
University of Arizona
Eller College of Management
McClelland Hall 320, 1130 E. Helen St.
Tucson, AZ 85721-0108
(520) 621-7479
dmgodfrey@email.arizona.edu

Ms. Lidan Xu
University of Illinois at Urbana-Champaign
Department of Business Administration
350 Wohlers Hall, 1206 South Sixth St.
Champaign, IL 61820
(608) 201-7189
lidanxu2@illinois.edu

Ms. Ashley Deutsch
University of Arkansas
Walton College of Business
302 Business Bldg.
Fayetteville, AR 72701
(479) 575-3966
adeutsch@walton.uark.edu

Mr. Mengzhou Zhuang
University of Illinois at Urbana-Champaign
Department of Business Administration
350 Wohlers Hall, 1206 South Sixth St.
Champaign, IL 61820
(217) 333-4240
mzhuang2@illinois.edu

Mr. Brandon McAlexander
University of Arkansas
Walton College of Business
302 Business Bldg.
Fayetteville, AR 72701
(479) 575-3966
bmcalexander@walton.uark.edu

Mr. Jingcun Cao
Indiana University
Department of Marketing
Kelley School of Business
1309 E. Tenth St.
Bloomington, IN 47405
(812) 369-2067
jingcao@indiana.edu

Dr. Bob Stassen
University of Arkansas
Walton College of Business
302 Business Bldg.
Fayetteville, AR 72701
(479) 575-3966
bstassen@walton.uark.edu

Dr. Niket Jindal
Indiana University
Department of Marketing
Kelley School of Business
1309 E. Tenth St.
Bloomington, IN 47405
(812) 855-7795
jindal@indiana.edu
Mr. Tae Woo Kim
Indiana University
Department of Marketing
Kelley School of Business
1309 E. Tenth St.
Bloomington, IN 47405
(319) 471-0620
kim805@indiana.edu

Ms. Leka Hsaine
Indiana State University
Scott College of Business
Department of Marketing
30 N. Seventh St.
Terre Haute, IN 47807
(812) 237-2033
lhsaine@sycamores.indstate.edu

Dr. Jessica Mikeska
Indiana State University
Scott College of Business
Department of Marketing
30 N. Seventh St.
Terre Haute, IN 47807
(812) 237-2033
Jessica.Mikeska@indstate.edu

Mr. Jason Bell
University of Iowa
Tippie College of Business
Department of Marketing, S252
Iowa City, IA 52242
(319) 335-1013
jason-bell@uiowa.edu

Mr. Young Kyu Kim
University of Iowa
Tippie College of Business
Department of Marketing, S252
Iowa City, IA 52242
(319) 335-1013
youngkyu-kim@uiowa.edu

Dr. DJ Nayakankuppam
University of Iowa
Tippie College of Business
Department of Marketing, S252
Iowa City, IA 52242
(319) 335-1013
dhananjay-nayakankuppam@uiowa.edu

Mr. Teng Fei
Iowa State University
College of Business
2167 Union Drive, Room 3367
Ames, IA 50011-2027
(515) 294-9553
tfei@iastate.edu

Dr. Hui Feng
Iowa State University
College of Business
2167 Union Drive, Room 3337
Ames, IA 50011-2027
(515) 294-3815
huifeng@iastate.edu

Mr. Pushpinder Gill
Iowa State University
College of Business
2167 Union Drive, Room 3367
Ames, IA 50011-2027
(515) 294-4111
gill@iastate.edu

Mr. Frank Cabano
University of Kansas
School of Business
1654 Naismith Drive
Lawrence, KS 66045
(813) 433-4287
frankcabano@ku.edu

Ms. Luxi Chai
University of Kansas
School of Business
1654 Naismith Drive
Lawrence, KS 66045
(785) 727-9189
chailuxi@ku.edu

Dr. Sanjay Mishra
University of Kansas
School of Business
1654 Naismith Drive
Lawrence, KS 66045
(785) 864-7528
smishra@ku.edu
Mr. Rob Simon  
University of Nebraska–Lincoln  
Department of Marketing  
CBA 328  
Lincoln, NE  68588-0492  
(402) 472-4562  
rsimon2@unl.edu

Dr. Ravi Sohi  
University of Nebraska–Lincoln  
Department of Marketing  
CBA 318  
Lincoln, NE  68588-0492  
(402) 472-3374  
rsohi1@unl.edu

Ms. Shilpa Somraj  
University of Nebraska–Lincoln  
Department of Marketing  
CBA 319A  
Lincoln, NE  68588-0492  
(402) 472-0612  
shilpa.somraj@huskers.unl.edu

Dr. Kathy Farrell  
University of Nebraska–Lincoln  
Dean's Office, College of Business Administration  
CBA 215C  
Lincoln, NE  68588-0405  
(402) 472-9500  
kfarrell2@unl.edu

Mr. Yashwant Pulumati  
University of Nebraska–Lincoln  
Department of Management  
CBA 209  
Lincoln, NE  68588-0491  
(510) 648-6915  
yashwantpulumati@gmail.com

Dr. Stacey Baker  
Creighton University  
Heider College of Business 4077  
2500 California Plaza  
Omaha, NE  68178  
(402) 280-1142  
staceymenzelbaker@creighton.edu

Dr. Anyuan (Daniel) Shen  
SUNY at New Paltz  
School of Business  
1 Hawk Drive  
New Paltz, NY  12561  
(845) 257-2669  
shena@newpaltz.edu

Mr. Taegyu Hur  
The Ohio State University  
Department of Marketing and Logistics  
2100 Neil Ave.  
Columbus, OH  43210  
(614) 292-8808  
hur.71@osu.edu

Ms. Hyowon Kim  
The Ohio State University  
Department of Marketing and Logistics  
2100 Neil Ave.  
Columbus, OH  43210  
(614) 292-8808  
kim.6150@osu.edu

Dr. Daniel Zantedeschi  
The Ohio State University  
Department of Marketing and Logistics  
2100 Neil Ave., 500 Fisher Hall  
Columbus, OH  43210  
(614) 292-1252  
zantedeschi.1@osu.edu

Mr. Gabriel Gazzoli  
Oklahoma State University  
Department of Marketing  
312A Business Building  
Stillwater, OK  74078  
(405) 744-5192  
gabriel.gazzoli@okstate.edu

Dr. Richie Liu  
Oklahoma State University  
Department of Marketing  
312A Business Building  
Stillwater, OK  74078  
(405) 744-5192  
richie.liu@okstate.edu
Mr. Aditya Singh  
Oklahoma State University  
Department of Marketing  
312A Business Building  
Stillwater, OK 74078  
(405) 744-5192  
aditya.u.singh@okstate.edu

Dr. Linda Price  
University of Oregon  
Lundquist College of Business  
Department of Marketing  
Eugene, OR 97403  
(541) 346-8374  
lprice@uoregon.edu

Mr. Eric Setten  
University of Oregon  
Lundquist College of Business  
Department of Marketing  
Eugene, OR 97403  
(541) 579-6858  
esetten@uoregon.edu

Mr. Brady Hodges  
Texas A&M University  
Mays Business School, Dept. of Marketing  
201F Wehner, 4112 TAMU  
College Station, TX 77843  
(979) 845-3028  
bhodges@mays.tamu.edu

Ms. Shruti Koley  
Texas A&M University  
Mays Business School, Dept. of Marketing  
215B Wehner, 4112 TAMU  
College Station, TX 77843  
(979) 845-4711  
skoley@mays.tamu.edu

Dr. Chirag Mittal  
Texas A&M University  
Mays Business School, Dept. of Marketing  
220M Wehner, 4112 TAMU  
College Station, TX 77843  
(979) 862-2451  
cmittal@mays.tamu.edu

Dr. U. N. Umesh  
Washington State University  
Department of Marketing & International Business  
Todd Hall Addition, 367 PO Box 644730  
Pullman, WA 99164  
(360) 546-9760  
umesh@wsu.edu

Mr. Yuan Wen  
Washington State University  
Department of Marketing & International Business  
Todd Hall Addition, 367 PO Box 644730  
Pullman, WA 99164  
(509) 335-0924  
yuan.wen@wsu.edu

Dr. James R. Brown  
West Virginia University  
College of Business & Economics, Department of Marketing  
PO Box 6025  
1601 University Ave., Room 200  
Morgantown, WV 26506-6025  
(304) 293-3053  
j.brown@mail.wvu.edu

Ms. Raika Sadeghein  
West Virginia University  
College of Business & Economics, Department of Marketing  
PO Box 6025  
1601 University Ave., Room 200  
Morgantown, WV 26506-6025  
(304) 293-6368  
rasadeghein@mix.wvu.edu

Ms. Lixun Su  
West Virginia University  
College of Business & Economics, Department of Marketing  
PO Box 6025  
1601 University Ave., Room 200  
Morgantown, WV 26506-6025  
(304) 293-4092  
lisu@mix.wvu.edu
**Dr. Kevin Chung**  
University of Wisconsin-Madison  
975 University Avenue  
Grainger Hall 4176  
Madison, WI  53706  
(608) 265-4431  
kevin.chung@wisc.edu

**Ms. Zoe (Yue) Lu**  
University of Wisconsin-Madison  
975 University Avenue  
Grainger Hall 4185  
Madison, WI  53706  
(608) 265-3346  
ylu248@wisc.edu

**Mr. Rusty Stough**  
University of Wisconsin-Madison  
975 University Avenue  
Grainger Hall 4185  
Madison, WI  53706  
(608) 265-3346  
rstough@wisc.edu

**Dr. Stephanie Geiger Oneto**  
University of Wyoming  
Management & Marketing  
1000 E. University Ave., Dept. 3275  
Laramie, WY  82071  
(307) 766-3458  
soneto@uwyo.edu

**Mr. Eric Krszjzaniek**  
University of Wyoming  
Management & Marketing  
1000 E. University Ave., Dept. 3275  
Laramie, WY  82071  
(307) 766-3124  
ekrszjza@uwyo.edu

**Mr. Cristian Maldonado**  
University of Wyoming  
Management & Marketing  
1000 E. University Ave., Dept. 3275  
Laramie, WY  82071  
(307) 766-3124  
csepulve@uwyo.edu

**Dr. John D. Mittelstaedt**  
University of Wyoming  
Management & Marketing  
1000 E. University Ave., Dept. 3275  
Laramie, WY  82071  
(307) 766-3655  
jmittels@uwyo.edu
IS MY FAILURE YOUR PROBLEM?: EXAMINING CARRYOVER EFFECTS OF PRIOR CONSUMER FAILURE ON CUSTOMER SATISFACTION

Matthew J. Hall and Jamie D. Hyodo, University of Nebraska–Lincoln

ABSTRACT

Prior research on consumer failure has either examined failure in isolation of firm interactions, or the impact of failure experienced during firm interactions on subsequent firm exchanges. Our research leverages the Do-It-Yourself (DIY) domain to show that consumers’ own failures, prior to firm intervention, influence how they perceive subsequent firm actions to complete the failed task. We demonstrate that failure can elicit either positive or negative carryover effects on customer satisfaction in the failed task domain, depending on consumer mindset and self-efficacy. Additionally, shame is identified as the affective process mediating these effects. We provide evidence that individual differences and prior experiences impact consumer perceptions of firm offerings, and suggest ways that firms can attenuate the negative carryover effects of prior consumer failure.

INTRODUCTION

Ryan has a leaky sink and thinks he has the knowledge, skills, and ability to fix it himself. After attempting to fix the leak, he fails and elicits the help of a professional plumber. After his sink is professionally fixed, Ryan is left feeling upset about his failure and is somewhat dissatisfied with the service provided.

Mitch needs a new countertop, and after watching a YouTube video about countertop installation, he wants to try the project himself. He purchases and attempts to install a countertop, but also fails. He calls a professional to complete the installation and is incredibly satisfied with the results. He even recommends the handyman to his friends.

These true stories both refer to situations in which a consumer attempted a task, failed, and then outsourced the task to a professional. Where they differ is in the consumers’ responses. Prior work suggests that failure results in negative affect (Bagozzi and Pieters 1998), which can lead to negative consumption experiences (Alford and Sherrell 1996). This research suggests that Ryan’s response may be the norm. Alternatively, failure is often attributed to increased task difficulty (Folkes 1988), which may increase appreciation of task completion (Patterson, Johnson, and Spreng 1996). Based on this literature, Mitch may have had the most appropriate response.

While extensive literature has examined consumer responses to firm and product failure (e.g., Folkes and Kotsos 1986), less research has considered consumer failure. Literature on consumer failure has been limited to failure in isolation of firm interactions (e.g., Baumeister 2002), or the impact of failure experienced during firm interactions on subsequent firm interactions (e.g., Folkes 1984). Our research leverages the Do-It-Yourself (DIY) domain to show that consumers’ own failures influence how they perceive subsequent firm offerings addressing the failed task.

By exploring this phenomenon, we contribute to the literature in the following ways. First, in response to calls for better understanding of holistic consumer experiences (Lemon and Verhoef 2016), we provide evidence that independent consumer experiences influence perceptions of firm offerings. Specifically, we show that consumer failure prior to firm intervention, can increase or decrease perceptions of firm offerings following task failure. Second, we identify consumer mindset (Dweck 2006) and self-efficacy as important moderators of these effects. Third, we identify shame as the affective process
mediating the relationship between failure and customer satisfaction. Finally, we suggest specific strategies that firms can leverage to attenuate negative outcomes following consumer failure. We begin by reviewing literature on failure, consumer mindset, self-efficacy, and shame. We then briefly discuss the DIY domain and present findings from four experimental studies. Lastly, we discuss implications for managers.

**CONCEPTUAL BACKGROUND**

**Consumer Failure**

Prior literature on failure in marketing has focused on the failure of firms (Anton, Camarero, and Carrero 2007), brands (Aaker, Fournier, and Brasel 2004; Roehm and Brady 2007), products (e.g., Dunn and Dahl 2012; Folkes 1984; Heidenreich et al. 2015), and services (e.g., Hess, Ganesan, and Klein 2003; McCollough, Berry, and Yadav 2000; Tax, Brown, and Chandrashekaran 1998) to meet customer needs or expectations. Generally, this body of work shows that attributions of failure in one consumption setting can influence subsequent interactions with the same firm (Folkes 1984), or can carry over to influence expectations of other firms (Darke, Ashworth, and Main 2010). Less research has explored the implications of failure when the consumer is at fault. Work in this area has either examined consumer failure to regulate internal processes during consumption attempts (i.e., dieting, compulsive buying, etc.; Baumeister 2002; Chae and Zhu 2013) and consumer failure during firm interactions (Folkes 1984; Wang et al. 2016). This research focuses on either consumer failure entirely isolated from firm intervention or on the impact of internally-attributed failure during firm interactions on future firm exchanges. No research addresses situations in which a consumer fails in isolation of firm involvement, but subsequently recruits a firm to address the unsolved problem.

Existing literature provides contradictory evidence regarding the effect of prior failure on subsequent consumer perceptions. On one hand, failure to accomplish a goal often results in negative affect (Bagozzi and Pieters 1998; Goldstein and Strube 1994), which is in turn associated with negative consumption experiences (Alford and Sherrell 1996; Matilla and Enz 2002; Pugh 2001). This suggests that task failure should **decrease** satisfaction with subsequent firm completion of the task.

**H1a:** Consumers who experience task failure will have lower satisfaction with subsequent firm completion of the task compared to consumers who do not initially attempt the task.

Alternatively, attribution theory posits that failure often elicits perceptions of increased task difficulty (as a means of preserving the self; Folkes 1988; Weiner 1985), which leads to increased value perceptions upon successful task completion (Patterson, Johnson, and Spreng 1996). This suggests that prior failure should result in **increased** satisfaction with firm efforts to complete the task.

**H1b:** Consumers who experience task failure will have higher satisfaction with subsequent firm completion of the task compared to consumers who do not initially attempt the task.

**Failure and Mindset**

Because H1a and H1b are both supported by extant literature, we examined additional variables that could help determine when each of these might occur. Of particular interest was consumer mindset, which impacts how individuals view ability and learning (Dweck and Leggett 1988). Prior research shows that individuals may adopt either a growth or fixed mindset towards ability and learning (Murphy and Dweck 2016). Those with a growth mindset believe that qualities like intelligence, ability, and personality are malleable and can be improved through increased effort, experience, and learning (Dweck 2006, p. 36). Those with a growth mindset do not enjoy failure, but they view it as an opportunity for learning and improvement through increased effort and attention (Blackwell, Trzesniewski, and Dweck 2007). Additionally, a growth mindset results in a greater appreciation of one’s own efforts and the efforts of others who can complete difficult tasks – both of which inspire growth and improvement (Dweck 2006, p. 35, 41).
Conversely, those with a fixed mindset believe that intelligence and ability are relatively stable (Dweck, Chiu, and Hong 1995). Fixed-minded individuals are driven to prove their ability level and respond very poorly to failure, with responses that frequently include negative affect (Henderson and Dweck 1990; Zhao and Dweck 1994). This suggests that while growth-minded individuals will view failure as a learning opportunity, fixed-minded individuals are likely to interpret the same situation as a threat to their self and confirmation of their lack of competence. As such, we propose that growth-minded individuals will derive greater satisfaction from firm actions following task failure as compared to not attempting a task. However, those with a fixed mindset will have lower satisfaction with firm efforts following their own failure.

**H2:** Consumer mindset will moderate the effect of prior task failure on customer satisfaction such that those with a growth mindset will respond more positively to firm actions following task failure than those with a fixed mindset.

### Self-Efficacy and Mindset

Another variable with relevance to failure and mindset is self-efficacy, which is the belief that one can activate the necessary motivations, resources, and actions needed to meet the demands of a given situation (Wood and Bandura 1989). Self-efficacy is positively associated with interest or involvement a domain (Xie, Bagozzi, and Troye 2008), which has been shown to amplify both positive and negative customer satisfaction outcomes (Richins and Bloch 1991; Westbrook and Oliver 1991). Low self-efficacy, on the other hand, can result in low involvement and less extreme reactions to failure (Weaver and Brickmam 1974). We thus anticipate that consumers with high self-efficacy are likely to have more interest or involvement in the initial (failed) task, which should result in stronger responses to both their own failure as well as subsequent firm recovery. For those with low self-efficacy, less interest in the domain is anticipated, which will reduce involvement and attenuate response to failure. Additionally, those with low self-efficacy tend to have lower expectations and are more prone to accept failure based on their low ability (Bandura 1977; Silver, Mitchell, and Gist 1995), both of which should contribute to muted responses when failed tasks are outsourced.

**H3:** Self-efficacy will moderate the interaction between prior task failure and mindset on customer satisfaction such that consumers with high (low) self-efficacy will demonstrate stronger (weaker) responses to firm actions following task failure as determined by their prevailing mindset.

### Shame

Another goal of this research is to explore the underlying mechanism driving these differences in satisfaction. One potential explanation is shame, which is an unpleasant affective state characterized by self-blame (Smith and Ellsworth 1985) that is most likely to occur when one falls short of one’s own personal standards, role expectations, or goals (Lewis 1971; Lewis and Haviland-Jones 2000). Considerable research has demonstrated the relationship between failure and shame (e.g., McGregor and Elliot 2005). Furthermore, negative emotions like shame are more likely to occur or be accentuated when failure is made public, as is the case when a professional must complete a previously failed task (Schneider 1977; Smith et al. 2002). We expect that task failure will lead to shame, which will decrease customer satisfaction (Alford and Sherrell 1996).

Based on prior research, shame is also likely to explain the hypothesized interactions between mindset, self-efficacy, and failure (Tracy and Robins 2006). For those with a fixed mindset, even a single failure following a history of successes can be enough to elicit negative affect like shame, because failure is viewed not as an action, but as an identity (Dweck et al. 1995; Dweck 2006, pg. 33). This suggests that increases in shame could explain decreased satisfaction following failure for the fixed-minded. Those with a growth mindset are not immune from shame following failure, however they are able to move past negative affect to achieve future success (Dweck 2006, p. 41). This is similar to findings by Carver &
Scheier (1990), who found that for some individuals, “the failure is displeasing, but the insight is elating” (pg. 27). Therefore, while failure typically elicits shame (McGregor and Elliot 2005), those with a growth mindset will use shame as motivation to learn, which will lead to increased satisfaction.

Shame has also been studied in relation to self-efficacy (Lynd 1958). Those with high self-efficacy are likely to have elevated expectations for the self, and are thus more likely to experience shame if those expectations are violated (Baldwin, Baldwin, and Ewald 2006). As Baldwin et al. state, “the greater the discrepancy between an expectation and the breach of that expectation, the greater the shame will be” (p. 5). Therefore, shame should be more prevalent after failure for those with high self-efficacy and less common in those with low self-efficacy. Because shame is a common outcome following failure and is differentially experienced based on individual mindset and self-efficacy, we expect shame to mediate the previously hypothesized interaction.

H4: Shame mediates the interactive effect of failure (vs. control), mindset, and self-efficacy on customer satisfaction with subsequent service provision.

**Figure 1: Full Mediation Model**

**STUDY 1**

The purpose of this study was to examine the competing hypotheses regarding the main effect of prior task failure on customer satisfaction (H1a and H1b). In order to study prior consumer experiences on future firm satisfaction, we leverage the Do-It-Yourself (DIY) domain in each study, which we interpret as consisting of any consumer action in which the production function of a good or service is completed by the consumer, rather than outsourced to the firm. This context not only offers a clean test of the phenomenon being studied, but also bears relevance due to its increasing popularity (Wolf and McQuitty 2011). Additionally, the DIY industry is relevant to practitioners as it was a $700 billion industry in 2013 (Hatch 2013, pg. 12).

**Method**

**Participants and Design.** Seventy-five undergraduate students from a large, Midwestern university completed the study for course credit (M\textsubscript{age} = 21.3 years, 36% female). Participants were randomly assigned to either the failure or the control condition.

**Procedure.** Participants read a scenario about a technology task. All participants read the following scenario:
Imagine that you are sitting in your apartment checking one of your favorite social media sites on your laptop computer. You are trying to view a friend’s photo when your internet suddenly stops working. You exit out of your browser and open it up again, but the website still will not load. You then restart your computer, but you still have no internet connectivity. You think that the problem may be with your wireless internet, but you rule out that possibility because your phone is still able to connect. You now know that there may be a serious problem with your computer’s network connectivity.

Those in the failure condition then read that they tried to fix their issues by implementing troubleshooting strategies found on an internet connectivity blog. After an hour of unsuccessful attempts, they took the computer to the campus IT Help Desk, where the problem was fixed. Participants in the control condition read that they immediately took their computer to the IT Help Desk after noticing the problem.

Measures. After reading the scenario, participants were asked to rate their satisfaction with their overall experience with the Help Desk. Satisfaction was measured using a 3-item, 7-point bipolar scale anchored by dissatisfied/satisfied, displeased/pleased, and negative/positive ($\alpha = .96$). Perceived task difficulty (1 = extremely easy, 7 = extremely difficult), computer-related experience (1 = little to no experience, 7 = significant experience), and demographic variables were collected as covariates.

Results and Discussion

Perceived task difficulty was included in the model as a covariate because it was correlated with customer satisfaction. Prior experience with computer-related issues was also included as a covariate. The resulting ANCOVA of customer satisfaction as a function of the manipulated condition (Failure: failure vs. control) resulted in a significant main effect of failure ($F(1,71) = 3.61, p = .04$) wherein those in the failure condition reported higher satisfaction ($M_{\text{Failure}} = 5.53$) than those in the control condition ($M_{\text{Control}} = 4.93$). This result supports H1b, as opposed to H1a, suggesting that consumers who have previously failed a task have higher customer satisfaction with services to complete the task than those who do not attempt the task prior to calling a professional.

Figure 2: Main effect of prior consumer failure on satisfaction

STUDY 2

Study 2 examined the moderating effect of consumer mindset, and extended prior findings to a more representative population and an alternative DIY task. As per H2, we hypothesize that those with a growth mindset will experience higher satisfaction following failure, while those with a fixed mindset will experience lower levels of satisfaction following failure.
Method

Participants and Design. Participants consisted of 165 American and Canadian Amazon Mechanical Turk (MTurk) workers who completed a two-condition (Failure: failure vs. control), between-subjects experiment in exchange for $0.75. Five participants were excluded from the analysis due to failed attention checks\(^1\), resulting in a final sample of 160 participants (Mage = 34.8 years; 47% female).

Procedure. Participants read a scenario about a plumbing task. All read the following:

*Imagine that you are in your kitchen and you notice that the drainpipe under your kitchen sink is leaking. There is a puddle of water under the drain and you can visibly see the water dripping down. It seems that the water is leaking out of the seam between two of the drain pipes.*

Those in the control condition then read:

*You think that you may be able to fix it yourself, but after considering this option for a while, you ultimately decide to call a professional plumber to fix it.*

Those in the failure condition read:

*You think that you may be able to fix it yourself, and after considering this option for a while you decide that you will try to fix the issue.*

*You first get all the tools you think you will need. You lay on your back under the sink and use a wrench to disconnect the drain. You then clean up the water that has leaked out of the removed drain pipe. Next, you attempt to reconnect the drain after resealing the leaking seam in the pipes. The process takes you nearly an hour to complete from the time you first noticed the dripping pipe.*

*After reconnecting the drain and turning on the water, you realize that you have failed to fix the problem - the pipes are still leaking. Because you were not able to fix the leak yourself, you decide to call a professional plumber.*

After the previous manipulations, all participants read about the following service provider experience.

*Continue to imagine that the next day, the plumber comes and looks at your sink. He says that this is a common problem, but is not as easy to fix as most people think. He proceeds to fix the issue as you sit next to him and watch him work. After about 30 minutes, he is able to fix the leak with no issues. As he works, he explains what the problem is and what he is doing to fix it. You pay him based on the company’s standard rate and he leaves.*

Measures. After reading the scenario, participants rated their satisfaction with the plumber, using the same 3-item, 7-point scale from Study 1 (\(\alpha = .93\)). Additionally, mindset was measured using a 4-item adaptation of Chiu, Hong, and Dweck’s (1997) items measured on a scale of 1 (strongly disagree) to 7 (strongly agree; \(\alpha = .87\)). Sample items included, “People have a certain amount of ability and you can’t really do much to change it” and “No matter how much ability you have, you can always change it quite a bit” (R). Potential covariates (e.g., task difficulty) and demographic variables were also recorded, as in Study 1. Composite mindset scores were calculated such that higher scores indicated a fixed mindset (lower indicated growth).

\(^1\) The final survey item asked whether participants agreed or disagreed that they paid attention and read all questions carefully. However, the end of the instructions for that question asked participants to check the “strongly disagree” option. Five participants failed this “instructional manipulation check” in Study 2 (Oppenheimer et al. 2009).
Results and Discussion

A mean comparison ANOVA test for initial equivalence revealed that mindset did not differ across failure conditions ($F(1,158) = .05, p = .83$). To test H2, an ANOVA of satisfaction as a function of failure, mindset (mean-centered), and their interaction revealed a main effect of failure ($F(1,156) = 11.19, p < .001$), qualified by a significant interaction effect ($F(1,156) = 2.25, p = .05$). Planned follow-up contrasts revealed a simple effect of failure for participants with more growth-oriented mindsets ($M_{FailureX(-1SDMindset)} = 6.84, M_{ControlX(-1SDMindset)} = 6.20; F(1,156) = 13.9, p < .001$). Similar contrasts, however, revealed a nonsignificant effect of failure for those with more fixed-oriented mindsets ($M_{FailureX(+1SDMindset)} = 6.33, M_{ControlX(+1SDMindset)} = 6.17; F(1,156) = .84, p = .36$), supporting H2. A Johnson-Neyman test (Spiller et al. 2013) further explained this interaction by demonstrating a significant positive effect of prior failure on service satisfaction for those with a mindset below 3.49 (more growth-minded) on the 7-point scale ($b_{JN} = -.183$, SE = .094, $p = .05$). Prior failure did not affect satisfaction for individuals with a mindset above 3.49 (see Figure 3).

While perceived task difficulty was predicted by the manipulated condition ($M_{Control} = 4.95, M_{Failure} = 4.01; F(1,158) = 16.3, p < .001$), when included in the satisfaction model as a covariate, all reported effects remained significant. Therefore, this covariate was not included in the final analysis.

Overall, this study builds on the findings of Study 1 by showing the positive effect of failure on perceived satisfaction only occurs for those with more of a growth mindset. The opposite effect was not found for those with more fixed mindsets. Rather, this study suggests that those with a fixed mindset perceive service provisions similarly regardless of prior failure. However, in support of H2, those with a growth mindset did have higher satisfaction than those with a fixed mindset following failure. This study provides initial evidence supporting the moderating effect of mindset on satisfaction perceptions following failure, however it is limited in its ability to generate causal inferences due to the measurement of mindset. Study 3 addresses this limitation.

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Figure 3: Effect of failure and mindset on satisfaction

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[Figure showing the relationship between mindset and satisfaction, with a Johnson-Neyman Point at 3.49]

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2 Main effect of failure ($F(1,155) = 9.632, p = .002$), and interaction effect ($F(1,155) = 2.24, p = .05$).
STUDY 3

The purpose of Study 3 was to replicate findings from Study 2 by manipulating, rather than measuring, participant mindset. Per H2, we again hypothesize that those with a growth mindset will experience higher satisfaction after failure than those with a fixed mindset.

Participants and Design. Study 3 consisted of 163 American and Canadian MTurk workers who completed a 2 (Failure: failure vs. control) x 2 (Mindset: fixed vs. growth) between-subjects experiment in exchange for $0.75. Participants were randomly assigned to one of four conditions (failure/growth, failure/fixed, control/growth, control/fixed). Five participants failed attention checks, resulting in a final sample of 158 participants (Mage = 32.7 years; 40% female).

Procedure. Participants were initially told that, because this study was designed to examine consumer responses to DIY activities, it was important that they have a basic understanding of prior research on consumer DIY abilities. Following this prompt, participants read a brief article relating to consumer DIY abilities to manipulate their mindset (fixed vs. growth) about consumer DIY aptitude (Bergen 1992). These articles were adapted from mindset manipulations used by Kray and Haselhuhn (2007). Participants in the growth mindset condition read an article titled, “DIY Skills are Changeable and Can Be Developed.” This article stated, “while it used to be believed that [DIY ability] was a fixed trait that people either have or don’t have, experts in the field now believe that the ability to successfully complete many DIY tasks is a skill that can be cultivated and developed over a lifetime.” This statement, along with others, were supported by data from fictional academic studies showing that DIY ability is malleable and can be improved through practice and experience. Participants in the fixed mindset condition read an article titled, “DIY Ability, Like Plaster, Is Fairly Stable Over Time.” This article stated, “while it used to be believed that this aptitude was essentially stored potential which could be developed, experts in the field now believe that people possess a finite set of rather fixed DIY ability.” This statement, along with others, was supported by fictional data showing that DIY ability is relatively static and cannot be easily improved through effort and experience. Rather, participants read that consumer DIY ability is difficult to change because it stems from childhood experiences, personality traits, and fixed intelligence.

After reading the mindset article, participants read the same task vignette from Study 2. Those in the failure condition were told that they attempted to fix the plumbing issue prior to calling a professional, while those in the control condition were told that they noticed the problem, considered attempting to fix it themselves, but ultimately decided it would be best to call a professional.

Measures. Customer satisfaction was measured using the same 3-item, 7-point scale from Studies 1 and 2 ($\alpha = .95$). The 4-item mindset scale from Study 2 was also included as a manipulation check for mindset ($\alpha = .87$). To assess the success of the failure manipulation, a one-item measure was added to assess the amount of effort expended in trying to fix the leak ($1 = $little to no effort, $7 = $heavy effort).

Manipulation Checks. As expected, those in the fixed mindset condition reported higher mindset scores (indicating more fixed beliefs regarding DIY abilities) after the manipulation ($M_{Fixed} = 3.33$) than those in the growth mindset condition ($M_{Growth} = 2.47$; $F(1,156) = 17.22, p < .001$). Also as expected, those in the failure condition reported exerting significantly higher effort in attempting to fix the leak ($M_{Failure} = 4.8$) than those in the control condition ($M_{Control} = 2.92$; $F(1,156) = 58.56, p < .001$).

Results and Discussion

To examine H2, an ANOVA of satisfaction as a function of failure, mindset, and their interaction revealed no significant main effects, but did reveal a significant interaction ($F(1,154) = 8.17, p = .005$). Those with a growth mindset had higher satisfaction following failure than when no attempt was made ($M_{Failure} = 6.42, M_{Control} = 5.68$; $F(1,154) = 9.71, p = .002$). However, for those with a fixed mindset, there
was no significant difference in satisfaction between the failure and control conditions (M_{Failure} = 6.05, M_{Control} = 6.27; F(1,154) = .86, p = .36). Again, these findings support H2 regarding the positive impact of failure on customer satisfaction following failure for those with a growth mindset.

The results from Study 3 again suggest that those with a growth mindset experience higher satisfaction following task failure, while those with a fixed mindset show no difference between failing and not attempting the task before eliciting professional help. Study 3 also adds increased causal interpretability to previous findings due to procedural control through the manipulation of mindset.

Figure 4: Study 3 Results: Satisfaction as a Function of Failure and Mindset

![Figure 4: Study 3 Results: Satisfaction as a Function of Failure and Mindset](image)

STUDY 4

Study 4 was designed to examine the moderating effect of consumer self-efficacy on previous findings, as well as test affect as the potential psychological process underlying these effects. Per H3, we hypothesize that self-efficacy will moderate the interaction between failure and mindset such that this interaction is stronger when self-efficacy is high than when it is low. Additionally, H4 predicts that consumer shame will mediate the effects of this interaction on consumer satisfaction.

Method

Participants and Design. Study 4 consisted of 162 American and Canadian MTurk workers who completed a 2 (Failure: failure vs. control) x 2 (Mindset: fixed vs. growth) between-subjects experiment in exchange for $0.75. As in Study 3, participants were randomly assigned to one of four conditions. Three participants failed attention checks, resulting in a final sample of 159 participants (M_{age} = 36.1 years; 47% female).

Procedure. The same procedure used in Study 3 was employed in this study, apart from added measures which are discussed below.

Measures. The same measures used in previous studies were also employed in this study. These included measures for customer satisfaction (α = .93), manipulation checks for mindset (α = .88) and failure effort, and control variables including task difficulty, task importance, and demographic variables. Self-efficacy was measured using three items (α = .86) adapted from Eden and Kinnar (1991). Two items were measured on a 1 to 7 scale asking participants to rate their ability to complete the task (example: 1 = I completely lacked the ability to do the task well, 7 = I had the ability to do the task well). The third item asked participants to rate their task-efficacy by moving a slider from 0% to 100% regarding the percentile of their ability to complete the task in relation to the general population (Eden and Kinnar 1991). Because general
affect has been shown to impact service perceptions (Han, Lerner, and Keltner 2007), a broad subset of the PANAS-X scale (Watson and Clark 1999) was included. Participants were asked the extent to which they felt various affective states on a 1 (very slightly or not at all) to 7 (extremely) scale. Measured states included feeling ashamed, embarrassed, upset, angry, guilty, blameworthy, helpless, frustrated, grateful, appreciative, thankful, interested, envious, impressed, proud, strong, self-respect, and self-worth (Watson and Clark 1999). These were chosen based on the potential for negative affect, gratitude, and pride to impact satisfaction (Liljander and Strandvik 1997; Machleit and Mantel 2001).

Manipulation Checks. As expected, those in the fixed mindset condition (M_{Fixed} = 3.29) supported a more fixed approach to ability after the manipulation than those in the growth mindset condition (M_{Growth} = 2.74; \( F(1,158) = 6.534, p < .01 \)). Also as expected, those in the failure condition reported exerting significantly higher effort in attempting to fix the leak (M_{Failure} = 4.98) than those in the control condition (M_{Control} = 2.82; \( F(1,158) = 85.17, p < .001 \)).

Results
Satisfaction. Replicating results in support for H2, a 2x2 between-groups ANOVA revealed no significant main effects, but a significant interaction between failure and mindset on consumer satisfaction (\( F(1,156) = 4.40, p = .04 \)). Those with a growth mindset had higher satisfaction following failure (M_{failure} = 6.34) than those who did not attempt the task (M_{control} = 5.88; \( F(1,156) = 4.38, p = .04 \)). For those with a fixed mindset, there was no significant difference in satisfaction between the failure or control conditions (M_{failure} = 6.03, M_{control} = 6.23; \( F(1,156) = .725, p = .40 \)). As in Study 3, perceived task difficulty was measured as a potential covariate. Though task difficulty was predicted by mindset (M_{Growth} = 4.56, M_{Fixed} = 4.14; \( F(1,158) = 3.92, p = .05 \)), the model remained significant when task difficulty was included as a covariate (\( F(1,155) = 4.99, p = .03 \)). These findings again show support for H2.

To test H3, we performed a Failure (vs. control) x Mindset (growth or fixed) x Self-Efficacy (mean-centered) GLM with perceived service satisfaction as the dependent variable. This analysis revealed no significant main effects, but as expected did reveal a significant three-way interaction (shown in Figure 5; \( F(1,152) = 3.88, p = .05 \)) wherein the two-way interaction between failure and mindset only appeared for those with high (+1SD) self-efficacy. Those with high self-efficacy and a growth mindset who failed had higher satisfaction than those who did not attempt the task (M_{Failure} = 6.42, M_{Control} = 5.49; \( F(1,152) = 8.64, p < .01 \)). However, for those with high self-efficacy and a fixed mindset, there is no simple effect of failure (M_{Failure} = 5.85, M_{Control} = 6.24; \( F(1,152) = 1.34, p = .25 \)). Also as predicted, the interaction between failure and mindset for those with low levels (-1SD) of self-efficacy was nonsignificant (Fs < .01, ps > .9).

We also elected to examine the two-way interaction effects between failure (vs. control) and self-efficacy for each mindset condition (results in Figure 6). Participants in a growth mindset revealed a significant two-way interaction (\( F(1,77) = 3.94, p = .05 \)) such that those with high self-efficacy had higher satisfaction following failure (vs. control), while those with low self-efficacy show no significant difference between failure and control. However, for those with a fixed mindset, the two-way interaction between self-efficacy and failure was nonsignificant (Fs < .01, ps > .9).

Shame. To isolate shame from other affect, we first conducted a factor analysis of all measured affective items. A principal axis factor analysis with a ProMax rotation was used, resulting in a four-factor solution based on Eigenvalues greater than one. Three variables failed to load on any factor with loadings higher than .50. These variables (helplessness, interest, and amazement) were removed from the analysis due to their insignificant loadings. Another factor analysis was conducted, resulting in the final four-factor solution with all remaining affective items loading on just one factor with all loadings above .60. The first factor, called shame, consisted of the items shame, embarrassment, guilt, blameworthiness, envy, and feeling threatened (\( \alpha = .89 \)). While this factor contained items similar to the guilt subscale of the PANAS-X
(Watson and Clark 1999), we refer to the factor as shame because shame had the highest loading of all items (shame = .95; guilt = .81). The second factor, gratitude, consisted of feeling grateful, appreciative, thankful, and impressed (α = .90). The third factor, pride, consisted of feeling proud, strong, and full of self-respect and self-worth (α = .90). The final factor, frustration, consisted of feeling upset, angry, and frustrated (α = .81). Following the factor analysis, composite scores for each factor were calculated by averaging scores for each variable with loadings above .60.

Figure 5: Two-way (Failure*Mindset) interactions for high/low self-efficacy on satisfaction

To test our mediation hypotheses (H4), we first tested the previous three-way interaction model (Failure x Mindset x Self-Efficacy) with shame as the dependent variable, revealing a significant three-way interaction (F(1,152) = 5.38, p = .02). For those a growth mindset, the two-way interaction between failure and self-efficacy was nonsignificant (F(1,77) = 1.15, p = .29). However, for those with a fixed mindset, a significant interaction between failure and self-efficacy was observed (F(1,75) = 5.38, p = .02). The results of these interactions, depicted in Figure 6, indicate that for those with a growth mindset who do not attempt the task, there is a positive relationship between self-efficacy and shame, which corresponds with a negative relationship between self-efficacy on satisfaction. For the growth-minded who fail the task, shame remains fairly constant regardless of self-efficacy, but this shame does not seem to impact satisfaction. In the fixed mindset, those who fail the task have higher shame as self-efficacy increases, which corresponds to decreasing satisfaction. The opposite effect on shame is observed for those who do not try the task.

To test the mediation of shame for the three-way interaction on satisfaction, follow-up analyses consisted of a moderated, moderated mediation analysis using Hayes’ (2013) PROCESS macro (Model 12). The full model included failure (vs. control) as the independent measure, mindset and self-efficacy as moderators, shame as the mediator, and satisfaction as the dependent measure. The model showed a significant indirect effect of this three-way interaction on satisfaction, through shame ($B_{\text{conditional indirect}} = -.12$, SE = .07, 95% C.I. = [-.29, -.02]). This indicates that shame mediates the significant three-way interaction, in support of H4.³

³ In order to rule out alternative potential affective mediators, the other composite affective constructs (gratitude, pride, and frustration) were tested using the same PROCESS macro (Model 12). No evidence for mediation was found for any alternative affective variables.
Discussion

The results of Study 4 replicate the previous two-way interaction between mindset and failure on satisfaction. However, this interaction is only present for those with high levels of self-efficacy.

Consistent with the literature, this study shows that shame mediates the effect of failure, mindset, and self-efficacy on satisfaction. Results suggest that experiencing shame after failure is the natural state of affairs (McGregor and Elliot 2005). However, for those with a fixed mindset and low self-efficacy, shame is not as common after failure which may be the result of low interest in the domain (Weaver and Brickman 1974). For these individuals, as self-efficacy increases failure elicits increased shame, which is associated with decreased satisfaction. While the effect of failure is contingent on self-efficacy, the fixed-minded who do not attempt the task experience higher shame when self-efficacy is low. This likely represents general negative affect related to one’s low ability (Dweck 2006, pg. 6). However, as self-efficacy increases, shame decreases for the fixed-minded who have not attempted the task. This is consistent with fixed-minded behavior as high ability is often correlated with positive self-beliefs, unless the perception is shattered by failure (Martocchio 1994). Because failure has not disrupted these perceptions, shame remains low, which results in higher perceived satisfaction.

Individuals in a growth mindset display the opposite pattern regarding shame. Those with high self-efficacy seem to display higher levels of shame overall, while those with low self-efficacy experience higher shame after failure. While differences in shame are minimal for the growth-minded, differences in satisfaction are significant. Therefore, while shame may occur in most cases (with the exception of low self-efficacy and control), it does not impact consumption outcomes in the same manner. This suggests that those with a growth mindset who fail are not exempt from shame, but their shame does not impact future firm perceptions (Dweck 2006, pg. 51). On the other hand, those with a growth mindset who do not attempt the task experience higher shame and lower satisfaction as self-efficacy increases. This likely occurs due to a lack of personal effort exerted in attempting the task. According to Dweck (2006) those with a growth mindset experience negative affect when a lack of effort prevents learning or goal achievement (pg. 44). Thus, our findings suggest that prior shame from a lack of effort leads to decreased satisfaction with service provider actions.

Table 1: Mediation Results

<table>
<thead>
<tr>
<th>Source</th>
<th>Coeff</th>
<th>p-value</th>
<th>Coeff</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>1.543</td>
<td>.11</td>
<td>5.158</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Failure</td>
<td>.110</td>
<td>.86</td>
<td>.904</td>
<td>.07</td>
</tr>
<tr>
<td>Mindset</td>
<td>.519</td>
<td>.40</td>
<td>1.101</td>
<td>.03</td>
</tr>
<tr>
<td>Failure*Mindset</td>
<td>-.182</td>
<td>.64</td>
<td>-.710</td>
<td>.02</td>
</tr>
<tr>
<td>Self-Efficacy (SE)</td>
<td>1.266</td>
<td>.05</td>
<td>-.508</td>
<td>.34</td>
</tr>
<tr>
<td>Failure*SE</td>
<td>-.947</td>
<td>.02</td>
<td>.313</td>
<td>.34</td>
</tr>
<tr>
<td>Mindset*SE</td>
<td>-.715</td>
<td>.08</td>
<td>.409</td>
<td>.22</td>
</tr>
<tr>
<td>Failure<em>Mindset</em>SE</td>
<td>.572</td>
<td>.02</td>
<td>-.282</td>
<td>.17</td>
</tr>
<tr>
<td>Shame</td>
<td></td>
<td></td>
<td>-.216</td>
<td>.001</td>
</tr>
</tbody>
</table>

Highest order indirect effect: \( B_{\text{conditional indirect}} = -.12, \ SE = .07, \ 95\% \ C.I. = [-.29, -.02] \)
This research demonstrates that consumer perceptions of firm offerings can be influenced by consumers’ (independent) past failures. Extant research discussing the importance of prior consumer failures has focused on past interactions with the focal firm or competing firms (e.g., Folkes 1984). By examining firm actions following consumers’ independent task failures, we show that prior consumer experiences in isolation from firm intervention impact firm outcomes. Accordingly, our findings show that firms must increase awareness of prior consumer experiences in order to better understand consumer responses to firm offerings. Specifically, we demonstrate that prior consumer failure has an overall positive impact on customer perceptions of firm actions. However, this effect is reduced when consumers have a fixed mindset. Additionally, we show that those in a growth mindset are less satisfied with firm outcomes when they have not attempted the task. This suggests that it is not just failure that impacts satisfaction, but rather a consumer’s overall experience in the domain. Additionally, we find that these reactions are accentuated when consumers have high self-efficacy in the domain, but attenuated when self-efficacy is low.
We also show that the previous effects are mediated by consumer shame. Consistent with prior research, our findings show that the fixed-minded tend to focus on outcomes, while the growth-minded focus on processes (Mathur et al. 2016). Specifically, those with a fixed mindset experience higher shame following failure, especially when self-efficacy is high. This supports prior research on mindset which shows that the fixed-minded respond poorly to failure, especially when they have a high expectation of success (Henderson and Dweck 1990). Our findings show that shame elicited by failure carries over to reduce satisfaction with firm offerings in the task domain.

Findings for growth-minded individuals suggest that shame differentially impacts consumer perceptions of firm offerings. For those with high self-efficacy, calling a professional without attempting the task elicits shame that severely reduces satisfaction. According to Dweck (2006), “in the growth mindset, it’s almost inconceivable to want something badly, to think you have a chance to achieve it, and then do nothing about it. When it happens, the I could have been is heartbreaking, not comforting” (pg. 44). Therefore, failure to attempt the task elicits shame which results in lower satisfaction with subsequent firm offerings. Interestingly, the growth-minded who attempted and failed the task still experienced shame, though this shame did not appear to affect perceived satisfaction (Dweck 2006, pg. 51), perhaps indicating benign. While benign shame has been discussed in the literature (see Hibbard 1994), it has never been shown to impact consumption outcomes differently than malignant shame. Future research should address the differential impacts of each shame component on perceived satisfaction following failure.

**Theoretical Contributions**

While prior publications have called for a more holistic understanding of the customer experience (Lemon and Verhoef 2016), little work has examined how individual differences and past consumer experiences impact satisfaction. The present research contributes to theory by demonstrating that customer satisfaction is impacted not just by past experiences with the firm or its competitors, but also by consumers’ own unique experiences and characteristics. This suggests that future research should consider additional customer experiences and traits that may impact satisfaction.

Our findings also contribute to literature on DIY. The term DIY is theoretically synonymous with prosumption, which is defined as “value creation activities undertaken by the consumer that result in the production of products they eventually consume and that become their consumption experiences” (Xie et al. 2008). While academics have often called for a better understanding of the outcomes of consumer engagement in production processes (Bendapudi and Leone 2003; Firat, Dholakia, and Venkatesh 1995; Humphreys and Grayson 2008; Vargo and Lusch 2004), most DIY research has focused on the antecedents of DIY actions (e.g., Bateson 1985; Moisio, Arnould, and Gentry 2013; Xie et al. 2008). Our research has implications for DIY outcomes, specifically demonstrating that consumer responses to prosumption activities depend heavily on task success or failure (Wolf and McQuitty 2011). We also show that these outcomes can either positively or negatively influence consumer perceptions of firm offerings, depending on consumer mindset and self-efficacy. Future research should examine the impact of mindset and prior failures on consumers’ initial intentions to prosume rather than immediately elicit professional help (Mathur et al. 2016).

Our findings also extend the application of the mindset construct in the consumer behavior literature. Previous work has discussed the impact of consumer mindset on product and brand preferences, responses to brand failures and advertising, and consumption motivations (Murphy and Dweck 2016; Park and John 2010; John and Park 2016). We extend this work by showing that mindset not only affects motivations, but also perceptions of firm actions. Our findings demonstrate that consumers with a fixed mindset may have negative reactions to post-failure firm actions, while those with a growth mindset will react more positively. However, our findings also show that consumers with a growth mindset may have negative reactions when a firm completes a task that the consumer did not attempt. This is consistent with Wheeler and Omair’s (2016) critique that growth-minded consumers may not always be beneficial for
firms. Our findings suggest that the firm’s successful completion of the task makes the growth-minded consumer’s lack of effort more salient (Murphy and Dweck 2016), which results in shame and decreased satisfaction. While this occurs in those with high self-efficacy, we find that those with low self-efficacy do not have the same maladaptive response. This is consistent with prior findings that “in some cases, acknowledging one’s limited ability to succeed in a domain, cutting one’s losses and moving on to greener pastures could be the most adaptive move” (Wheeler and Omair 2016, pg. 138). Collectively, these findings provide empirical evidence extending our knowledge regarding the impact of mindset in the consumer behavior domain.

Lastly, our findings contribute to the extant literature on the relationship between consumer affect and satisfaction (e.g., Alford and Sherrell 1996). We demonstrate that consumer shame mediates the effect of mindset and failure on customer satisfaction outcomes such that increased shame leads to decreased customer satisfaction. However, we also show that the presence of shame does not seem to impact all consumers equally. For those with a fixed mindset, shame seems to directly decrease satisfaction outcomes. Similarly, shame reduces satisfaction for those with a growth mindset who do not attempt the task. However, for those with a growth mindset who do attempt and fail, shame is experienced but does not decrease satisfaction (Dweck 2006, pg. 51). As discussed, future research should examine how this benign shame can be used as a motivating factor to encourage positive consumption outcomes.

Managerial Contributions

The present research has several implications for managers. First, it shows that managers should train frontline employees (FLEs) to understand past consumer experiences in a domain prior to service interactions. This is especially important for managers in domains where consumer DIY activities are common. FLEs must be able to assess whether task failure has occurred prior to firm intervention. However, even if failure has not occurred, negative outcomes can result if the consumer has a growth mindset and has not attempted the task. This suggests that FLEs must be trained to understand overall consumer experiences in the focal domain.

Additionally, because our findings suggest that consumer shame drives satisfaction, managers can develop FLE interventions to reduce negative outcomes. This can be accomplished either by reducing shame directly, or indirectly by influencing consumer mindset. For example, if the consumer has a fixed mindset and has failed the task, the FLE could emphasize task difficulty to reduce shame and increase satisfaction. Similarly, if the consumer has tried and failed the task, the FLE could encourage the consumer to take a growth-minded approach by emphasizing how failure can provide a learning opportunity (Murphy and Dweck 2016). For consumers who are growth minded and do not attempt the task, shame likely stems from a failed opportunity to learn by doing (Blackwell et al. 2007). Therefore, the FLE could reduce consumer shame by teaching the consumer how to complete the task. While this may increase satisfaction with the current interaction, it also may create future competition for the firm. Future research should examine the impact of mindset and self-efficacy on consumer likelihood to reattempt prosumption activities post-failure (Xie et al. 2008). Lastly, future research should explore specific firm advertising messages or FLE interventions that could result in these desired effects. While our manipulations show that consumer mindset can be altered, they also involved lengthy news articles regarding mindset. By identifying short advertising messages or components of the FLE interaction that may influence mindset or shame, managers can effectively alter consumer satisfaction with discrete FLE interactions (Murphy and Dweck 2016).
REFERENCES


EXPLORING THE ROLE OF CREATIVE ENGAGEMENT ON DONATION BEHAVIOR

Lidan Xu, University of Illinois at Urbana Champaign

ABSTRACT

Approximately $13 billion is needed in humanitarian assistance each year (OCHA 2013), with 70% of these funds coming from individual donors. Practitioners and academics alike have sought to understand the methods and ways to enhance such donation. The current essay proposes and demonstrates “creative engagement” as a novel yet effective way to enhance donation behavior. Specifically, this essay advances prior knowledge by examining why and how engaging in creative tasks can influence subsequent donation behaviors. It is found that engagement in a creative task activates an expansive mindset, which in turn expands social and moral boundaries and leads to higher donation behavior. However, this effect is attenuated when one engages in creative thinking tasks that are more convergent in nature; convergent creative thinking employs a more constrained cognitive process that inhibits the expansive mindset, thereby obstructing moral expansiveness and thus donation behavior.

INTRODUCTION

Creativity plays a significant role in solving everyday life consumption problems, such as planning meals with limited resources (Burroughs and Mick 2004), customizing products to satisfy one’s own needs (Dahl and Moreau 2007), and adopting new and innovative products (Mehta, Zhu, and Cheema 2012). Given the importance of creativity in consumers’ lives, it is not surprising that a significant amount of research has been devoted to studying the various factors and cognitive processes that impact creativity. For example, researchers have examined cognitive factors such as analogical thinking (Dahl and Moreau 2002) and cognitive flexibility (Feist 1998), task-related factors like systematic training (Goldenberg, Mazursky, and Solomon 1999) and constraints (Moreau and Dahl 2005), environmental factors like color (Mehta and Zhu 2009) and noise (Mehta et al. 2012), and personal factors like life experiences (Maddux and Galinsky 2009) and intrinsic motivation (Amabile 1996) and the role of these factors in creative output and performance.

Much less attention, however, has been paid to examining the consequences of creativity. In fact, only recently have researchers started to examine the downstream implications of a creative mindset (Gino and Ariely 2012). Interestingly, the prior research has mainly focused on the effects of simply priming a creative mindset and examining the negative consequences of such a mindset on social behaviors. Gino and Ariely (2012) present one example of such a claim, demonstrating that priming creativity enhances dishonest behaviors. Along similar lines, Vincent (2013) shows that people who view themselves as creative may be more prone to feelings of entitlement that license the commission of dishonest acts. In the first essay of my dissertation, I propose to extend this nascent area of research in two main ways. First, I study the downstream implications of actually engaging in creative tasks, and second, I focus on the positive social implications of such engagement, specifically monetary donations.

In particular, I argue that engaging in a creative task activates an expansive mindset, which in turn expands moral and social boundaries and leads to higher positive social behavior, such as making monetary donations. The UN Office for the Coordination of Humanitarian Affairs suggests that nearly seventy-three million people around the world need humanitarian assistance, presenting a cost of $13 billion each year (OCHA, 2013). Interestingly, individual donors play a significant role in providing such assistance by donating $264.58 billion – over 70 percent of the contributions made to annual charitable donations (Giving USA 2016). However, eliciting donations from individuals is not an easy task (Chen, Zhu, and Handy 2016; Lee, Winterich, and Ross 2014). Millions of charities from around the world compete with each other and adopt novel strategies and practices to gain individual donations. Very recently, for example, the ALS
association invited people from around the globe to participate in the ice-bucket challenge to increase awareness of ALS and raised approximately $220 million from individual donors (Holan 2014). Similarly, the American Red Cross engages its consumers through participation in creative activities, such as drawing and coloring creative designs before seeking donations.

Thus, while previous work has primarily focused on examining the priming effects of creativity, consumers are often engaged in real creative tasks put forth by charitable organizations seeking monetary donations. Furthermore, although recent work examining the consequences of creativity has primarily focused on the negative social implications, some prior work has indeed presented the positive influences of creative priming. For example, Sassenberg and Moskowitz (2005) find that priming individuals with creativity can reduce stereotyping. Hence, the evidence suggests that creativity may have positive implications for social behaviors. I extend the work of the prior literature by examining how engaging in creative tasks may influence subsequent social behavior in the domain of monetary donation.

Furthermore, and importantly, this dissertation also makes valuable contribution to the donation literature. Although we have started to observe real-life phenomena in which charitable organizations engage donors in creative tasks, it is rather unclear whether consumers’ engagement in creative activities can indeed influence their donation behavior. While prior research has explored the role of individual-level characteristics (e.g., political identities; Winterich, Zhang, and Mittal 2012), donor motivations (Lee and Shrum 2012), and employed persuasive strategies (Kristofferson, White, and Peloza 2014) on consumers’ willingness to donate, very little research has investigated the role of cognitive processes as induced by external factors, such as engagement in creative tasks, regarding their impact on donation behaviors.

In sum, the focal objective of this thesis is to advance the current understanding of how and why unique cognitive processes activated by engaging in creative tasks or thinking creatively may influence one’s donation behavior. In the following sections, I first review the extant literature on creative cognition and donation behavior and develop hypotheses regarding whether and why engaging in a creative task may influence donation behavior. I then report five experiments that provide support for my hypotheses. I conclude with the theoretical and practical implications of my proposition and findings.

CONCEPTUALIZATION

Creative Cognition

Creativity is ubiquitous in the consumption domain, permeating tasks such as finding a creative way to use everyday objects (Mehta and Zhu 2016), telling a creative bedtime story, and customizing one’s own shoes. Because of its abundance in everyday life, creativity has fascinated researchers from many different domains who then proceed to engage in extensive study. Early researchers equated creativity with “divine intervention,” in which a creative person was seen as an “empty vessel that a divine being would fill with inspiration” (Sternberg and Lubart 1999; p.5). As scientific research progressed, creativity moved away from being a mysterious characteristic that only creative geniuses had, and began to be argued as a characteristic held by ordinary individuals that could be studied in common subjects (Guilford 1950). Increasingly, creativity started to be seen as a product of ordinary cognitive processes as opposed to some exceptional or mystical gift (Ward, Smith, and Finke 1999).

With such understanding of creativity, literature has produced a deeper understanding of creativity as a cognitive process (Hershman and Leib 1988) that leads to an output (a work, a product, a solution, or an idea) that is not only novel and original but also useful and appropriate within the context in which it arises (Amabile 1983). It has been argued that, to be creative, an idea or a solution must not only be different from what is already known (i.e., novel and original) but also must be appropriate and effective in solving the problem at hand (i.e., practical and useful; Moreau and Dahl 2005; Sternberg and Lubart 1999). For example, using a brick as a weight-lifting device is creative, as it is both original (different from the ordinary

22
uses of a brick) and appropriate (it is a viable use of a brick). However, using a brick as a food item may not be creative because, although it may be original, it is inappropriate and a bizarre use of a brick that is virtually impossible.

The cognitive processes that lead to such creative output require retrieval and recombination of knowledge from disparate locations in memory (Smith 1995). Essentially, creative thinking is a cognitive search process that requires exploration in a structured conceptual space (Boden 1998). In a similar vein, Perkins (1997) discusses creativity as a cognitive search through the “possibility space” of solutions. He argues that individuals search through a “solution space” by accessing relevant information and knowledge in their mental structure in a large associative network. Once the associations are accessed, individuals must recombine those associations in novel and original ways to generate creative ideas. In essence, generating creative outputs requires one to shift between mental categories and perspectives and recognize remote associations between loosely connected ideas (Ashton-James and Chartrand 2009; Guilford 1959; Isen et al. 1987) and then utilize these associations to generate novel and creative solutions (Guilford 1950; Dahl et al. 1999). In sum, creative output is produced when people flexibly frame the same problem in multiple ways, recombine existing ideas to make novel connections, or go beyond pre-existing associations and relationships to generate novel ideas (Guilford 1950).

**Creativity and Expansive Mindset**

Creative thinking, thus based on this further research, involves engaging in diverse and dispersed search through the associations and solution space (Guilford 1968, 1982; Runco 1991). During this process, individuals must break away from the constraining effects of existing knowledge and generate a wider range of ideas that are distinct from each other, spanning many different categories (Brown and Paulus 2002; Goncalo and Staw 2006). Being creative permits uninhibited exploration while roaming freely across the boundaries between different types of ideas rather than being constrained to consider a narrow set of ideas (Goncalo et al. 2015). Thus, one jumps easily and quickly from one thought to another in a weakly guided fashion (Colzato et al. 2012; Hommel 2012), leading to more spontaneous information processing that allows for fluent retrieval of remote associations (Dietrich 2004). Such an explorative search strategy that involves probing of a larger search space enhances one’s ability to further expand and recognize associations between broad concepts (Cohen, McClure, and Yu 2007; March 1991).

A good example of a creative thinking task is an Alternative Uses Task (Guilford 1967). The goal of this task is to generate unusual uses for a common product, such as a brick. The more remote these generated uses are from the product’s common use (e.g., using a brick to build a house), the more divergent and creative they are (e.g., using it as a pillow). As discussed above, during such a creative generation process, one needs to think about the multiple and diverse concepts and associations that are linked to the object. Such associations must go beyond the existing knowledge structures (e.g., a brick is used for building things), deviating from closely related links to more divergent associations, and expand the associations from far and loosely connected areas.

In summary, engaging in creative thinking tasks requires consumers to explore a variety of diverse ideas and further recognize and appreciate associations from remote fields (Cropley 2006; Csikszentmihalyi 1997; Guilford 1959). Such a cognitive process, resulting from engaging in creative tasks, encourages an expansive processing style that broadens the conceptual attention and goes beyond the boundaries of what is already known or salient (Guilford 1950).

I argue that such an expansive cognitive orientation, induced through engagement in a creative task, will persist as an expansive mindset, influencing subsequent information processing that in turn will impact donation behavior. It has indeed been shown that cognitive orientation activated by contextual cues or task engagement in a specific context can persist as a generalized mindset, in turn affecting judgment and decision making in subsequent, unrelated contexts (Brieley and Wyer 2002; Chandran and Morwitz 2005;
Mehta and Zhu 2016; Xu and Wyer 2007). Such a context-independent effect occurs because the activated mindset defines and directs the general way through which individuals attend to and process information (Xu and Wyer 2007). Once a judgment has been made or a decision-strategy has been used, it is much more accessible and easily reactivated in subsequent settings (Carlston 1980). For example, Mehta and Zhu (2016) find that making the concept of resource scarcity salient activated a mindset focused on constraints that in turn persisted and influenced subsequent information processing (i.e., reduced functional fixedness), thus impacting participants’ resulting behavior (i.e., product use creativity) in the following, unrelated task.

Expansive Mindset, Moral Expansiveness, and Donation Behavior

Forwarding the above discussion, I propose that the expansive mindset activated by creative engagement persists to encompass social information and moral consideration. That is, engaging in a creative task leads to higher social and moral expansiveness. As discussed previously, creative engagement, which activates an expansive mindset, leads one to think beyond existing boundaries and broadens the consideration set to include both salient and non-salient associations. Such cognitive expansion, I argue, expands the boundaries of social and moral regard and broadens one’s social and moral circle, that is, enhances moral expansiveness. Note that a moral circle is characterized as a boundary that distinguishes the entities deemed worthy of moral consideration from those that are not (Singer 1981). In a similar vein, moral expansiveness refers to “the breadth of entities deemed worthy of moral concern and treatment” (Crimston et al. 2016, p. 2). When a person is less morally expansive, he or she restricts concern to those entities that are considered “close” (e.g., family). However, when a person is morally expansive, he or she extends moral care and consideration beyond the boundaries to more “distant” entities (e.g., animals or plants). In brief, I argue that the expansive mindset activated by engaging in a creative task persists to influence the way in which people process social information and categorize their social and moral boundaries. In particular, it broadens one’s social and moral boundaries, that is, induces higher moral expansiveness, which in turn I suggest facilitates concern for others and willingness to extend care, thereby positively impacting donation behavior.

It has been argued that, as one’s moral and social circle expands, one becomes more inclusive of a larger set of social groups rather than being confined to one’s in-group members (Reed and Aquino 2003). It has been found that moral expansiveness promotes treating a wider range of others with moral consideration (Laham 2009) and enhances favorable attitudes toward relief efforts for out-group members (Reed and Aquino 2003). Importantly, however, Crimston et al. (2016) argue and demonstrate that moral expansiveness incorporates not only the breadth of moral concern (extending moral concern to more types of entities), but also increases the depth of moral concern (the level of moral concern extended to each entity), which in turn enhances donation behavior (e.g., donating money to save chimpanzee habitats). These authors further found that people who had higher moral expansiveness were significantly more likely to make a donation, even if such donation required significant personal sacrifice (e.g., donating a kidney).

Thus, summarizing the arguments so far, I propose that engaging in creative tasks will activate an expansive mindset, thereby leading to higher moral expansiveness, which in turn will enhance one’s donation behavior. Formally, I propose the following:

H1: Engaging in creative thinking tasks will lead to higher monetary donation.

H2: Engaging in creative thinking tasks will activate an expansive mindset, which will manifest itself as social and moral expansiveness and in turn lead to higher monetary donation.

Boundary Condition: Types of Creative Thinking

So far, I have argued that engaging in a creative task activates an expansive mindset that then persists and leads to higher moral expansiveness, which in turn enhances one’s donation behavior. If indeed my theorizing is correct, then the following can be expected: if a creative task does not induce an expansive
mindset, then one should not observe an increase in moral expansiveness, and the positive effect of creative engagement on donation behavior should be attenuated. Prior research suggests that creative output can be achieved through two different types of creative thinking processes – divergent creative thinking and convergent creative thinking. I suggest that the proposed positive effect of creativity on donation behavior will only emerge when creative thinking is divergent in nature, while it will be attenuated when creative task requires convergent thinking.

Although divergent creative thinking, as discussed previously, is a bedrock of creativity, a creative output can also be achieved through convergent thinking (Cropley 2006; Guilford 1959; Runco 2003). Convergent, as compared to divergent, creative thinking employs a more constraint cognitive process in which information search is conducted to generate although novel but one right or the best answer to solve the problem at hand that meets well-defined criteria (Colzato et al. 2012; Sowden et al. 2015). Thus, engaging in convergent creative thinking not only requires individuals to recognize the associations among different ideas, as is required during divergent creative thinking, but also needs one to maintain the goal of generating the solution that satisfies well-defined criteria (Cropley 2006; Lin and Lien 2013; Runco 2003). It has been argued that convergent, as compared to divergent, creative thinking is more goal-directed in nature and focuses on the refinement and evaluation of associated concepts against pre-defined criteria (Colzato et al. 2012; Sowden et al. 2015). This then leads to a focus on selecting the best solution and causes a probing of associations from adjacent fields that are likely to satisfy the defined criteria to reach the final creative solution (Cropley 2006; March 1991). Individuals involving in convergent creative thinking therefore tend to work with a smaller search space and focus on a narrow range of relevant information.

An example of a widely used convergent creative thinking task is the Remote Associates Test (Mednick 1962). In this task, individuals are presented with three or four words (e.g., shelf, read, and end) and are asked to identify one word that is associated with the presented words in terms of association, meaning, or abstraction (e.g., book). In order to successfully solve this problem, one must not only recognize remote associations, but also focus only on the relevant associations that are likely to satisfy the well-defined criteria set by this task. To enhance the efficiency and speed of finding the solution, one tends to roam around one or a small number of categories and focus on a narrow range of relevant information that is most conducive to finding the final solution and satisfying the well-defined criteria. Such a restrictive (i.e., singular target and exclusive decision-making) mode of information processing forms the basis of convergent thinking (Hommel et al. 2011). I argue that this style of information processing, which is creative (i.e., requires recognition and utilization of remote associations) but convergent in nature, will restrict an expansive mindset and hence social and moral expansiveness, thereby attenuating the positive effect of creative engagement on donation behavior, as is hypothesized for divergent creative thinking.

Formally, I hypothesize the following:

**H3**: The positive effect of creative engagement on donation behavior is attenuated when the task requires convergent creative thinking.

**EXPERIMENT OVERVIEW**

I conducted five experiments to test my hypotheses and found supporting evidence for my proposition. Experiments 1A and 1B examined the effect of creative engagement on real monetary donation behavior (H1). Experiment 2 then tested the proposed underlying process and demonstrated that indeed moral expansiveness mediates the relationship between creative engagement and monetary donation (H2). Experiment 3 explored a boundary condition of the proposed effect and showed that the positive effect of creative engagement on donation behavior is attenuated when the creative task is convergent in nature (H3), thus, demonstrating that when a creative task does not activate an expansive mindset, we should not observe moral expansiveness and hence a positive impact on donation behavior. The final experiment further explicated the cognitive process, through which engagement in creative thinking impacts donation behavior. In particular, this experiment examined the joint effect of creative thinking style and expansive
mindset on moral expansiveness and its subsequent effect on donation behavior. Supporting my conceptual model, the results demonstrated that under default conditions engaging in divergent versus convergent creative thinking style leads to higher moral expansiveness, which then enhances donation behavior. However, if expansive mindset is externally induced, it leads to higher moral expansiveness and donation behavior regardless of the nature of the creative thinking (i.e., divergent or convergent) style that individuals engage in.

**EXPERIMENT 1A**

Experiment 1A was conducted to test the focal hypothesis (H1) that engaging in a creative as compared to a non-creative task, will enhance donation behavior. Importantly, the experiment borrowed the donation context from a real-life social enterprise ‘Elephant Parade’. This organization works towards raising awareness for the need of elephant conservation by inviting consumers to create/paint their own clay elephants. The proceeds are then donated towards elephant welfare and conservation projects worldwide.

**Method**

Eighty-nine undergraduate students (49 women) at a large North American university completed this experiment in exchange for a course credit. The experiment was run in small batches with no more than 10 participants per session. To begin, the participants were checked in and assigned to a designated computer desk. Each desk was equipped with a small wooden donation box (please see appendix A) along with a white envelope containing $2 in quarters (i.e., eight quarters). The donation box was labeled with ‘Elephant Parade’ sticker and had a slit on the top so that the quarters could be put in easily. Also, four quarters were left in each donation box, to create the impression that the study administrator would not know whether the participant in fact donated money or not, thereby reducing the demand effect and participants’ feeling of obligation to donate. Once the participants had settled down, the study administrator read them the general instructions for the experimental session. The participants were also told that in order to thank them for their participation in the experiment, in addition to the course credit, they were also being paid $2, which was in the envelop on their desks.

The experiment adopted a one-way design in which participants were assigned to either creative or non-creative engagement condition. The condition was randomized by session, such that only one of the conditions was run per session. Creative engagement was manipulated through a drawing task, which was inspired by a real creativity task that is utilized by a social enterprise – ‘Elephant Parade’ to engage consumers. ‘Elephant Parade’ invites everyday consumers to create their own elephant designs using the ‘Artbox Kit’ that includes a small white miniature elephant and a variety of colors. In the current experiment, however, the participants were given a sheet of paper with a picture of elephant (please see appendix B) and were then asked to color it. As a cover story, the participants were told that before beginning the study, we would like to put their minds at ease and would therefore like them to engage in a coloring task. The participants in the creative engagement condition, were provided with a box of crayon markers (with ten different colors) to color the elephant and were told to be as creative as possible while coloring and decorating the elephant picture. They were also told that they could use as many different colors as they would like for the task. In the non-creative condition, however, the participants were provided with only grey crayon markers and were told to simply color the elephant picture. In both the conditions, participants were asked to not spend more than five minutes on the coloring task. The coloring task was pretested for manipulation effect and other confounding measures (e.g., mood, involvement, perceptions of competence, performance satisfaction) before it was utilized in the main experiment (for detailed procedure and results for the pretest, please see appendix C). The pretest showed that besides creativity requirement the two tasks were equivalent did not differentially influence other potential confounding variables.

In the main experiment, after finishing elephant coloring activity (i.e., manipulation), the participants were presented with the donation task. Specifically, they were told that the experimenters were
helping a non-profit organization ‘Elephant Parade’ by raising money for it. They were then provided with a short description and donation appeal from ‘Elephant Parade’ (please see appendix D). Next, participants were told that if they would like to help out, they could donate any amount that they would like, from the money they had received for participating in the experiment. To do so they could simply put the quarters they were willing to donate into the donation box on their table. The number of quarters they donated served as the key dependent variable for this experiment. After finishing the donation task, the participants completed a few unrelated tasks, provided their demographic information and were then debriefed before being dismissed. The study administrator then recorded the number of quarters donated by each participant.

Results

Donation Behavior. The donation behavior was assessed through the amount of money that participants donated to the ‘Elephant Parade’, after engaging in either a creative or non-creative task. The amount of donation ranged between zero and two dollars. One-way ANOVA conducted for the donation amount revealed that engaging in the creative task ($M = 1.13, SD = .80$), lead to significantly higher donation amount as compared to the amount donated after engagement in the non-creative task ($M = .74, SD = .89$; $F(1, 87) = 4.50, p = .037$).

Discussion

The results obtained from Experiment 1A provide support for the focal hypothesis (H1) that engaging in a creative task enhances the donation behavior. In this experiment, participants engaged in the manipulation task that was inspired by a real-life creative activity utilized by a social enterprise – ‘Elephant Parade’. As noted previously the pretest did indicate that the coloring tasks used in the two conditions did not differentially affect confound variables like mood, involvement and one’s perceptions of competence and performance satisfaction. Further, this experiment assessed donation behavior through real monetary donations participants made to ‘Elephant Parade’. This experiment thus demonstrates real-world implication of the current work by demonstrating that indeed engaging in a creative task can enhance donation behavior, and creative engagement can be an effective way to solicit donations.

Note, however, in this experiment participants’ colored an elephant and were then asked to donate money for a cause related to elephants. Although, such donation scenarios are in line with real-life contexts, one may question whether the observed effect is only domain specific or would hold across contexts. To test this assertion, I conducted a follow-up experiment, as reported next, in which I used a traditional creativity task to manipulate creative engagement and then measured participants’ donation behavior for an unrelated non-profit organization.

EXPERIMENT 1B

Experiment 1B was conducted with an aim to establish the generalizability of the effect observed in Experiment 1A. In particular, it tests whether the subject effect is domain specific, that is, when creativity task and donation request are encompassed within the same context or is it context-independent and more generalizable in nature.

Method

Forty-six undergraduate students (28 women) at a large North American university completed this experiment in exchange for a course credit. The cover story and the basic procedure followed was similar to that of experiment 1A, however, participants completed a different manipulation task and were asked for donation for a different charity. In particular, before the participants arrived, each computer desk was equipped with a small wooden donation box, with a sticker “Healthier Tomorrow” (the name of the organization soliciting donation). Also, as done in the previous experiment, four quarters were left in the box. Also, an envelope containing eight quarters (i.e., $2) was left on each desk, as additional compensation for participating in the study.
The experiment adopted a one-way design in which participants were randomly assigned to either creative or non-creative engagement condition and completed the study using computer-based survey. A ‘product uses’ task was utilized as the focal manipulation task. In the creative engagement condition, participants completed the classic ‘brick task’ (Guilford 1967), in which they were asked to come up with as many creative uses of a brick as they could think of. They were also told to refrain from listing traditional uses of a brick or uses that are virtually impossible. In the non-creative condition, the participants were asked to come up with usual or traditional uses of a brick. They were further asked to refrain from listing non-traditional uses of a brick and uses that are virtually impossible.

Next, participants responded to a few demographic questions (i.e., age, gender, and nationality) and were informed that part of the study was now complete. However, before they started the second unrelated study, we presented them with a donation request. In particular, they were told that experimenters were helping a non-profit organization “Healthier Tomorrow” by raising money for it. Then a donation appeal from “Healthier Tomorrow” (a real-life non-profit organization that helps people overcome the epidemic of obesity and sedentary lifestyles, promoting lifelong habits necessary to promote health) appeared on the screen (Winterich and Zhang 2014; see appendix E). The participants were then told that if they would like to help out, they could donate any amount that they preferred from the money they had received for participating in the study. To do so, they could simply put the quarters that they were willing to donate into the donation box on the table. The participants then completed another unrelated study, before being debriefed and leaving the lab. The study administrator counted the number of quarters in the donation box and recorded donation amount for each participant.

Results

Donation Behavior. Replicating the results from experiment 1A, one-way ANOVA revealed a significant main effect of task type \((F(1, 44) = 4.33, p = .043)\) on the donation amount. Those who engaged in the creative task \((M = 1.56, SD = .77)\) donated significantly more money than those who engaged in the non-creative product-uses task \((M = 1.05, SD = .87)\).

Discussion

The results from Experiment 1B thus replicated the findings of Experiment 1A in a context-independent setting. It was found that simply engaging in a creative task, that had no relationship with the donation target still increased the amount of money people donated to the charity. These results, thus, provide further support for the focal hypothesis (H1) that engaging in a creative task enhances monetary donation. In the next experiment, I seek to advance the findings of first two experiments by examining the proposed underlying process though which creative engagement may impact donation behavior. In addition, the next experiment re-tests the role of the confounding variables assessed in Experiment 1A pretest (mood, involvement etc.) as potential alternative explanations of the observed effect, within the context of the same study.

EXPERIMENT 2

Experiment 2 was conducted with an aim to test the role of moral expansiveness as the mechanism that may underlie the effect of creative engagement on donation behavior (H2). Specifically, it was hypothesized that because engaging in a creative task activates an expansive mindset, it will lead to greater moral expansiveness that in turn will enhance donation behavior. As mentioned before, this experiment also aimed to rule out other confounding measures –involvement, perception of self-competence, performance satisfaction and mood.

Method

Ninety-one adults (33 women) who were members of Amazon Mechanical Turk online panel completed this experiment in exchange for a small monetary compensation. Participants were randomly
assigned to either creative or non-creative task engagement condition. The bubble-wrap task, borrowed from Mehta and Zhu (2016), was utilized to induce respective manipulations. Specifically, all participants were told that the University computer lab was just moved to a new location and all shipments came packed in bubble wrap. Now the university has almost a room full of bubble wrap sheets and don’t really know what to do with it. In the creative engagement condition, participants were asked to come up with a creative and novel idea/solution for what to do with these bubble wrap sheets. In the non-creative condition, participants were asked to come up with a traditional and usual idea/solution for what to do with these bubble wrap sheets. A picture of a bubble wrap sheet was also presented to the participants to ensure unilateral perception of the product. Once the participants finished the bubble wrap task, they were presented with the same donation appeal from Healthier Tomorrow as used in Experiment 1B. The participants were then asked to imagine that they had $50 in their pocket and how much would they be willing to donate to Healthier Tomorrow at that moment in time. Participants were free to indicate any amount between $0 and $50.

Next, to measure moral expansiveness, we utilized moral expansiveness scale developed by Crimston et al. (2016). Specifically, all participants were told that we were interested in understanding how completing the bubble wrap task may have made them feel about several entities. Hence, they were asked to think back to the bubble wrap task they had completed and were then presented with the moral expansiveness task. In line with Crimston et al. (2016), the participants were first provided with definitions of four levels of moral boundaries: 1) an inner circle, 2) an outer circle, 3) fringes of moral concern, and 4) outside the moral boundary (see appendix F for the details). Next, they were presented with 30 entities spanning 10 categories (family and friends, in-group, out-group, revered people, stigmatized, villains, high-sentience animals, low-sentience animals, plants, and environment) and asked to rate how they perceived each entity on the moral boundary using 4-point scales (0 = outside of moral boundary, 1 = fringes of moral concern, 2 = outer circle of moral concern, 3 = inner circle of moral concern). Note, a higher aggregate score on this task reflects higher moral expansiveness (Crimston et al. 2016).

The participants then responded to the manipulation check questions indicating how creative they thought was the bubble wrap task, and how much creativity they thought it required for successful completion. Next, they responded to the same confound measures as used in experiment 1A pretest, on 7-point scales (1 = not at all; 7 = very much). Specifically, to measure their involvement, the participants were asked to indicate how much effort did they put into the bubble wrap task, how motivated were they to do well on the task, and how involved were they when completing the task (α = .86). They also answered their level of satisfaction with their performance (i.e., the generated solution in response to the bubble wrap problem) and how competent they felt while completing the bubble wrap problem. To measure participants’ mood, I asked them to indicate how they had felt while completing the bubble wrap task using 7-point scales on six items (positive mood (α = .90): happy, cheerful, excited; negative mood (α = .95): sad, depressed, upset). Finally, all participants completed the same demographic questions as in previous experiments.

Results

Manipulation Check and Confound Variables. As desired, one-way ANOVA did show that those in the creative (vs. non-creative) engagement condition found the manipulation task (i.e., bubble wrap task) to be significantly more creative in nature ($M_{creative} = 4.23, SD = 1.66; M_{non-creative} = 3.19, SD = 1.88; F (1, 89) = 7.72, p = .007) and that it required more creativity to complete ($M_{creative} = 4.73, SD = 1.58; M_{non-creative} = 3.26, SD = 1.81; F (1, 89) = 17.01, p < .001). Also, as expected no difference was observed between the two task conditions with respect to participants’ level of involvement ($M_{creative} = 5.17, SD = 1.37, M_{non-creative} = 5.03, SD = 1.49; F < 1), perception of self-competence ($M_{creative} = 4.98, SD = 1.36, M_{non-creative} = 4.81, SD = 1.72; F < 1) and satisfaction with their performance on the bubble wrap task ($M_{creative} = 4.57, SD = 1.70, M_{non-creative} = 4.91, SD = 1.92; F < 1). Finally, no difference was observed on participants’ positive ($M_{creative}
= 3.77, SD = 1.80, $M_{\text{non-creative}} = 3.84$, $SD = 1.89$; $F < 1$) or negative mood ($M_{\text{creative}} = 1.71$, $SD = 1.33$, $M_{\text{non-creative}} = 1.39$, $SD = .93$; $F (1, 89) = 1.81$, $p = .182$) between the two conditions.

**Donation Behavior.** Replicating the results from previous experiments, one-way ANOVA revealed a significant main effect of the task type on the donation amount ($F (1, 89) = 4.66$, $p = .034$), such that those who engaged in the creative task ($M = 8.43$, $SD = 12.18$) indicated significantly higher amount of money that they were willing to donate as compared to those who engaged in the non-creative task ($M = 4.09$, $SD = 6.29$).

**Moral Expansiveness.** Following Crimston et al. (2016), each participant’s moral expansiveness score was calculated based on the aggregate score of all 30 entities ($\alpha = .93$). Note, the score could vary from 0 to 90, with higher scores indicating greater moral expansiveness. As hypothesized, it was found that engaging in the creative ($M = 53.07$, $SD = 13.72$) as compared to the non-creative task ($M = 46.19$, $SD = 17.61$) did indeed lead to higher moral expansiveness ($F (1, 89) = 4.28$, $p = .042$).

**Mediation Analysis.** Finally, I conducted a mediation analysis to examine whether, as hypothesized, moral expansiveness indeed drives the effect of creative engagement on donation behavior. To do so, the bootstrap approach was adopted, where task type was kept as the independent variable, moral expansiveness score as the mediator, and the donation amount as the dependent variable in the model (Preacher, Rucker, and Hayes 2007). A bias corrected bootstrap confidence interval obtained by resampling the data 10,000 times did not include zero, thereby indicating a significant indirect (i.e., mediation) effect of moral expansiveness on the relationship between creative engagement and the donation amount ($\beta = .95$, $SE = .82$, bias-corrected 95% CI = [.01, 3.52]).

**Discussion**

The obtained results from this experiment thus corroborate findings from previous experiments that engaging in creative thinking enhances donation behavior. More importantly, the results from this experiment support H2 and provide evidence for moral expansiveness as the underlying process through which creative engagement influences donation behavior. This experiment, also ruled out other potential alternative explanations of the observed effect. No difference was observed between the two conditions on participants’ mood, involvement, perception of competence or their level of satisfaction with the achieved performance.

The results have now consistently shown that engaging in creative thinking enhances donation behavior, and that this effect is driven by moral expansiveness. Note, however, as I have previously argued that moral expansiveness, in essence, is induced because of the expansive mindset which is activated by engagement in creative thinking task. Hence, if my conceptualization is correct then the observed effect should be attenuated, when creative task engagement does not activate an expansive mindset. Next experiment examines this question.

**EXPERIMENT 3**

Experiment 3 examined a critical boundary condition for the effect of type of creative engagement task on donation behavior. In particular, it tested the hypothesis that when creative task (e.g., convergent creative thinking task) does not activate an expansive mindset, the observed positive effect of creative engagement on donation behavior will be attenuated (H3). As discussed previously, creativity can be achieved through two types of thinking styles: divergent thinking and convergent thinking. While engaging in divergent thinking encourages exploratory search process and activates an expansive mindset, engaging in convergent thinking uses more focused and constrained thinking style, which in turn attenuates the activation of expansive mindset. Thus, under such condition (i.e., convergent creative thinking) we should not observe greater moral expansiveness, and hence the positive effect of creative engagement on donation behavior should be attenuated. However, when one engages in a creative task that is divergent in nature,
results observed in previous studies should replicate.

Method

One hundred ninety adults (85 women), who were members of the Amazon Mechanical Turk online panel completed this study in exchange for a small monetary compensation. The experiment, adopted a 2 (Task type: creative vs. non-creative) by 2 (Thinking style: divergent vs. convergent) between-subject design and the participants were randomly assigned to one of the four treatment conditions. For the divergent thinking conditions, I utilized the same manipulation task as used in experiment 1B. Specifically, participants completed the brick task and were asked to come up with either as many creative and original ideas (creative condition) or as many traditional and usual ideas (non-creative condition) for the uses of a brick. In the convergent thinking condition, the participants were presented with Duncker’s candle problem (Duncker 1945), a widely used convergent creative thinking task (Maddux and Galinsky 2009). In the creative condition, participants were given the traditional task details and instructions. Specifically, the participants were shown a picture containing several products on a table: a candle, a pack of matches, and a box of tacks, all of which were next to a wall. Participants’ task was to figure out how to attach the candle to the wall by using only the objects on the table, so that the candle burns properly and does not drip wax on the table or the floor. The creative solution consists of emptying the box of tacks, tacking it to the wall, and placing the candle inside, so that the box of tacks is used as a candleholder. Note, the creativity in finding the right solution to the problem requires one to think about using the box of tacks in a novel fashion (Duncker 1945; Glucksberg and Weisberg 1966). Under the convergent non-creative condition, the participants were presented with the task instructions and setup that has previously been used as the non-creative version of the Duncker’s candle problem (Adamson 1952). Specifically, participants are shown a similar problem picture as in the creative condition with the exception that the presented box is empty and the thumbtacks are shown separately on the table. Thus, in this task, the creative element of construing the use of thumbtack box in a novel fashion is missing, rendering this problem-solving task more traditional and non-creative in nature.

After completing the focal manipulation task, all participants were presented with a donation task. In particular, they were shown an advertisement appeal from a non-profit organization – the Pediatric Cancer Foundation, seeking monetary donation to fight childhood cancer (see appendix G), and asked to examine the appeal as they would in their normal lives. Next, participants were asked to imagine having $50 in their pocket and how much of it they would be willing to donate to the Pediatric Cancer Foundation at that moment in time. To make sure that the manipulation tasks did not influence one’s mood, we asked participants to rate how they felt while completing the manipulation task using 5-point scales (1 = not at all; 5 = extremely) on the same six items used in previous experiments. Three of these items concerned positive mood (happy, cheerful, excited; α = .90) and three concerned negative mood (sad, depressed, upset; α = .85). Finally, all participants completed the same demographic questions as in the previous experiments.

Results

Mood. Two-way ANOVA revealed no interaction between the thinking styles and task types on both positive mood ($M_{div/crt} = 2.85, SD = .86; M_{div/noncrt} = 2.59, SD = 1.10; M_{conv/noncrt} = 2.64, SD = 1.11; M_{conv/crt} = 2.62, SD = 1.12; F < 1$) and negative mood ($M_{div/crt} = 1.48, SD = .71; M_{div/noncrt} = 1.37, SD = .65; M_{conv/crt} = 1.27, SD = .69; M_{conv/noncrt} = 1.22, SD = .59; F < 1$). There was no main effect of task type or thinking style on positive mood (all $Fs < 1$). Further, there was no main effect of task type on negative mood ($F < 1$), but a marginally significant difference was observed on thinking styles, such that those who engaged in convergent thinking ($M = 1.25, SD = .64$) had higher negative mood than those who engaged in divergent thinking ($M = 1.42, SD = .68; (F(1, 185)^{1} = 3.58, p = .06)$.

* One participant did not complete the mood measure, and thus the sample size for the mood measure was 189.
**Donation Behavior.** A two-way ANOVA conducted for the amount of money participants were willing to donate returned a significant interaction between task type and thinking style \((F(1, 186) = 5.90, p = .016; \text{see figure 1})\). Replicating the results from previous studies, when the task was divergent in nature, the participants who engaged in the creative version \((M = 15.24, SD = 11.83)\) indicated higher donation amount as compared to those who engaged in the non-creative version of the task \((M = 10.17, SD = 11.16; t(186) = 2.28, p = .024)\). However, as hypothesized, no difference emerged on the donation amount between the creative and non-creative conditions when the task was convergent in nature \((M_{creative} = 10.08, SD = 10.08; M_{non-creative} = 12.57, SD = 9.66; t(186) = 1.14, p = .26)\). Further contrast analysis showed that under the creative condition, those who engaged in a divergent thinking task \((M = 15.24, SD = 11.83)\) indicated a significantly higher donation amount as compared to those who engaged in the convergent thinking task \((M = 10.08, SD = 10.07; t(186) = 2.36, p = .02)\). Under the non-creative condition, however, there was no difference in the indicated donation amounts between divergent \((M = 10.17, SD = 11.16)\) and convergent thinking task conditions \((M = 12.57, SD = 9.66; t(186) = 1.09, p = .28)\).

**Figure 1: Interactive Effect of Task Type (Creative vs. Non-creative) and Thinking Style (Divergent vs. Convergent) on Donation Amount**

**Discussion**

This experiment examined a key boundary condition of the effect observed in the previous experiments. It was found that when the creative task is more convergent in nature, which uses more constrained and focused cognitive processing, the positive effect of creative engagement on donation behavior is attenuated. This finding also, reaffirms the role of expansive mindset in the creative engagement – donation relationship. In the next experiment, I directly examine the role of expansive mindset and provide additional evidence for the proposed underlying process.

**EXPERIMENT 4**

In this experiment, I further explicate the role of expansive mindset and moral expansiveness in creative engagement – donation relationship. Note, I have argued that creative engagement activates an expansive mindset, which then expands moral boundaries and leads to higher donation behavior. However, this effect is attenuated when creative engagement does not activate an expansive mindset (i.e., engaging in a convergent creative task). It thus appears that, if expansive mindset is indeed what drives the effect, then when expansive mindset is externally activated, even engaging in a convergent creative thinking task should lead to higher donation behavior. That is because the expansive mindset should persist and lead to higher moral expansiveness. But when expansive mindset is not externally activated, we should replicate the effect as observed in previous experiments, that is, engaging in divergent creative thinking should lead to higher moral expansiveness thereby leading to higher donation behavior.
Method

One hundred and fifty-five adults (91 women) from Amazon Mechanical Turk online panel completed this experiment in exchange for a small monetary compensation. The experiment utilized a 2 (Creative thinking style: divergent vs. convergent) by 2 (Mindset: expansive vs. control) between-subject design and the participants were randomly assigned to one of the four treatment conditions. To start, participants were presented with either the creative version of the brick task or the creative version of the candle task, as used in Experiment 3, to induce divergent versus convergent creative thinking style respectively.

Next, to manipulate expansive mindset participants were presented with an analogy task. The participants were first provided with the definition of analogy in the context of word-pair exercise (the left word pair is analogous to the right word pair) and then presented with ten 4-word sets that constitute analogies (e.g., ‘baker: cake : scientist : discovery’; see appendix H for all the sets used in the study; Green et al. 2010). They were then asked to examine each pair of words and indicate how good they thought each of the presented analogy was on 1 to 7 scales (1= not a good analogy, 7 = very good analogy). Those in the control condition completed a word reading task instead. These participants were presented with the same words as used in the goodness of analogies task, but in a random order such that no connection whatsoever seemed to be present among these words. Participants saw these words in a form of a list and were asked to read them for about two minutes, approximately the same amount of time as was required to complete the goodness of analogies task in the expansive mindset condition.

After completing the manipulation tasks, participants were presented with the same donation task as that in experiment 2. Specifically, they were presented with the donation appeal from Healthier Tomorrow and were asked that if they had $50 in their pocket, how much of it would they be willing to donate to this organization, at that moment in time. Next, I assessed participants’ moral expansiveness through a social categorization task. The participants were first asked to think back to the time when they were completing the problem solving and the word tasks, and take a few moments to think about how engaging in those tasks had made them feel. Next, they were presented with a social categorization task borrowed from Isen, Niedenthal, and Cantor (1992), in which they saw two superordinate social categories (nurturant type of people and artistic/cultured type of people), presented one at a time, each followed by seven types of people (e.g., grandmother, nurse, bartender, hippie, animal lover, gardener, housekeeper; and painter, dancer, world traveler, chef, sailor, birdwatcher, recluse). Participants’ task was to indicate how much they perceived each type of person to be within the boundary of a nurturant/artistic type of person, on 1 (not at all) to 7 (very much) point scales. Note, higher scores reflect a broader moral circle and indicate higher moral expansiveness. Finally, all participants answered a few demographic questions as used in previous experiments.

Results

Donation Behavior. A two-way ANOVA conducted for the amount of money participants were willing to donate returned a significant interaction between creative thinking task type and mindset ($F(1, 151) = 4.42, p = .037$; see figure 2). Under the control condition (i.e., when expansive mindset was not externally induced) those who engaged in the divergent creative thinking task ($M = 9.44, SD = 12.55$) indicated a significantly higher donation amount as compared to those who engaged in the convergent creative thinking task ($M = 4.18, SD = 3.66$; $t(151) = 2.40, p = .018$). However, as hypothesized, when expansive mindset was externally induced, no difference was observed in the donation behavior between divergent ($M = 8.44, SD = 9.24$) and convergent creative thinking conditions ($M = 9.69, SD = 9.30$; $t < 1$). Further contrast analysis showed that when participants engaged in convergent creative thinking task, they indicated higher donation amounts when expansive mindset was externally induced ($M = 9.69, SD = 9.30$) versus when it was not ($M = 4.18, SD = 3.66$; $t(151) = 2.49, p = .014$). However, no such difference was
observed when participants engaged in the divergent creative thinking task ($M_{\text{expansive}} = 8.44$, $SD = 9.24$; $M_{\text{control}} = 9.44$, $SD = 12.55$; $t < 1$).

**Figure 2. Interaction Effect of Creative Thinking Style (Divergent vs. Convergent) and Mindset (Expansive vs. Control) on Donation Amount**

![Graph showing interaction effect](image)

_Moral expansiveness._ To assess participants’ moral expansiveness, I first averaged participants’ ratings of their perception of each type of person being within the boundary of the given superordinate category to create moral expansiveness index ($\alpha = .78$). A two-way ANOVA conducted for this index returned a significant interaction between creative thinking task type and mindset ($F(1, 151) = 6.52$, $p = .012$; see figure 3). The contrast analysis revealed that under the control condition (i.e., when expansive mindset was not externally induced), those who engaged in a divergent creative thinking task ($M = 5.02$, $SD = .69$) indicated higher moral expansiveness as compared to who engaged in the convergent creative thinking task ($M = 4.51$, $SD = .76$; $t(151) = 3.23$, $p = .001$). Under the expansive mindset condition, however, no significant difference was observed in moral expansiveness between divergent ($M = 4.82$, $SD = .53$) and convergent creative task conditions ($M = 4.88$, $SD = .76$; $t < 1$). Further analysis showed that the participants in the convergent creative thinking condition, indicated higher moral expansiveness when the expansive mindset was externally induced ($M = 4.88$, $SD = .76$) as compared to when it was not (i.e., in the control condition; $M = 4.51$, $SD = .76$; $t(151) = 2.33$, $p = .021$). However, no such difference was observed under divergent creative thinking condition ($M_{\text{expansive}} = 4.82$, $SD = .53$; $M_{\text{control}} = 5.02$, $SD = .69$; $t(151) = 1.27$, $p = .21$).
Mediation analysis. Finally, I conducted a moderated mediation analysis to examine whether indeed expansive mindset manifests as a moral expansiveness to drive the effect of creative thinking style on donation behavior. A 10,000 resample bootstrap analysis with creative thinking style as the independent variable, expansive mindset as the moderator, moral expansiveness as the mediator, and the donation amount as the dependent variable in the model (see figure 4; Preacher, Rucker, and Hayes 2007), returned an overall significant conditional indirect effect ($\beta = -1.28, SE = .64$, bias-corrected 95% CI = [-2.91, - .34]). As hypothesized, and in line with results observed in Experiment 2, a significant conditional indirect effect emerged under the control condition ($\beta = 1.14, SE = .46$, bias-corrected 95% CI = [.41, 2.34]), demonstrating that when expansive mindset was not externally activated, engaging in a divergent (vs. convergent) creative thinking lead to higher moral expansiveness, which in turn enhanced donation behavior. However, when the expansive mindset was externally activated, greater moral expansiveness and heightened donation behavior was observed irrespective of creative thinking style, and thus no mediation was observed under this condition ($\beta = -.13, SE = .35$, bias-corrected 95% CI = [-1.02, .43]). Importantly, providing support for my conceptualization, a significant conditional indirect effect emerged under the convergent creative thinking condition ($\beta = .83, SE = .48$, bias-corrected 95% CI = [.11, 2.04]), demonstrating that when expansive mindset was externally induced it lead to greater moral expansiveness which in turn enhanced donation behavior. However, as expected no such effect was observed under the divergent creative thinking condition ($\beta = -.44, SE = .34$, bias-corrected 95% CI = [-1.33, .07]).
Discussion

The results from this experiment provide convincing support for my conceptualization that, expansive mindset underlies the effect of creative thinking on donation behavior and manifests itself as moral expansiveness. Also, the obtained results provide further support for the boundary condition of the effect as defined by the type of creative thinking. Similar to experiment 3, it was found that the positive effect of creative engagement on donation is attenuated when the creative task is more convergent in nature and there is no external activation of expansive mindset. Interestingly, however, when expansive mindset was externally induced, we observed heightened moral expansiveness and donation amount regardless of the type of creative thinking participants engaged in.

GENERAL DISCUSSION

The current research proposes to make several important theoretical and practical contributions. First, it promises to advance the scant literature that examines the downstream consequences of engaging in creative tasks. Although, as consumers are being provided with increasing opportunities to engage in creative activities, from participating in crowdsourcing platforms (MyStarbucksIdea.com; ideas.lego.com, etc.) to engaging in customization processes (NikeID, Casetify customized phone cases, etc.), very little prior research has examined cognitive and behavioral consequences of such engagement. Given the ubiquity of consumers’ engagement in such creative activities, it is of value to understand how engaging in those activities may influence downstream behaviors, such as donation behavior. Importantly, the current research also extends the current understanding of the two types of creative thinking styles, by illuminating the underlying cognitive processes through which divergent versus convergent creative thinking can influence downstream donation behaviors. Engaging in a divergent creative thinking activates an expansive mindset that manifests as social and moral expansiveness that is turn leads to higher donation behavior. Engaging in a convergent creative thinking, on the other hand, involves more constrained and focused cognitive process that inhibits activation of expansive mindset, thereby attenuating moral expansiveness and subsequent donation behavior. Thus, although both divergent and convergent thinking can lead to creative output, the cognitive processes employed under these two types of creative thinking styles are different and can thus promote different social and behavioral consequences.

This research also extends the previous literature on donation behavior by proposing a novel cue (i.e., creative engagement) that can promote donation behavior. Very little research in this domain has investigated how cognitive processes induced by external cues (e.g., engaging in creative thinking tasks) can implicitly impact donation behaviors. This thesis extends this domain of research by demonstrating the cognitive process that one utilizes can influence the processing of social information, in turn impacting one’s donation behavior. Understanding how such consumer engagement, that is not directly related to
donation appeals or donor characteristics, non-consciously influences consumers can help charitable
organizations develop and utilize novel and effective approaches to gain better support to help those who
are in need.

The current work also offers important practical implications for marketers and charitable
organizations that strategize ways to enhance individual contributions to help those who are in need. This
research suggests that charitable organizations can invite individual donors to engage in creative behaviors
(e.g., the Ice Bucket Challenge) or use creative appeals to increase their willingness to donate. In addition,
as mentioned earlier, today’s consumption environment offers ever-increasing opportunities for consumers
to engage in creative behaviors. Hence, it will be of value to today’s marketers, policy makers and
consumers alike, to understand how engaging in creative activities may influence consumers’ subsequent
cognition and behavior. Thus, this research will not only advance theory in both creativity and donation
behavior literature, but also offer valuable insights to practitioners to design effective techniques to invite
monetary donations from consumers.
REFERENCES


——— (1968), Intelligence, Creativity and Their Educational Implications, San Diego, CA: RR Knapp.


APPENDIX A
Wooden Donation Box Used for Experiments 1A and 1B

APPENDIX B
Elephant in Experiment 1A
APPENDIX C

**Experiment 1A Pretest Procedure and Results**

Twenty-three participants from the same subject pool participated in this pretest. As done in the main experiment the participants were assigned to either creative task or non-creative engagement condition, which were randomized by session. The participants completed the same elephant coloring tasks as detailed previously and then answered relevant follow-up questions.

The assessment of these follow-up measures did reveal that the participants in creative versus non-creative engagement condition felt that the task they completed was significantly more creative in nature ($M_{creative} = 4.20$, $SD = 1.03$; $M_{non-creative} = 2.08$, $SD = .95$; $F(1, 21) = 26.07$, $p < .001$) and required more creativity to complete ($M_{creative} = 3.50$, $SD = 1.72$; $M_{non-creative} = 2.15$, $SD = 1.46$; $F(1, 21) = 4.12$, $p = .055$). To assess their level of involvement, the participants were asked to indicate how much effort did they put into the elephant coloring task, how motivated were they to do well on the task, and how involved were they when completing the task ($\alpha = .72$), on 1 (not at all) to 7 (very much) scales. One-way ANOVA showed no significant difference on involvement between the two conditions ($M_{creative} = 3.97$, $SD = 1.16$, $M_{non-creative} = 3.77$, $SD = 1.24$; $F < 1$). Further, we measured participants’ perception of self-competence and feeling of satisfaction with their performance on the coloring task, and found no differences on these measures between the two conditions (perceived self-competence: $M_{creative} = 4.30$, $SD = 2.06$, $M_{non-creative} = 4.46$, $SD = 1.90$; $F < 1$; Felt satisfaction: $M_{creative} = 4.30$, $SD = 1.70$, $M_{non-creative} = 3.85$, $SD = 1.41$; $F < 1$). Finally, to assess participants’ mood, we asked them to indicate how they had felt while completing the elephant coloring task using 7-point scales (1 = not at all; 7 = very much) on six items. Three of these items concerned positive mood (happy, cheerful, excited; $\alpha = .89$) and three concerned negative mood (sad, depressed, upset; $\alpha = .97$). No difference was observed on either the positive mood ($M_{creative} = 4.10$, $SD = 1.25$, $M_{non-creative} = 4.05$, $SD = 1.37$; $F < 1$) or negative mood ($M_{creative} = 1.43$, $SD = .96$, $M_{non-creative} = 1.51$, $SD = .96$; $F < 1$).

**APPENDIX D**

**Donation Appeal for ‘Elephant Parade’**

**Animal Conservation**

BTW, before you begin the next part of the study, we have a request to make. The experimenters are helping a non-profit organization 'Elephant Parade' by raising money for it.

Elephant Parade is a non-profit organization that provides a structural and ongoing source of income for elephant welfare and conservation, making it possible to give elephants a fighting chance in the battle for space, dignity and survival. The organization is committed to raising funds to make a difference and to help save elephants.

If you would like to help out, you may donate any amount that you would like, from the money you received for participating in this study. You can simply put the quarters that you are willing to donate into the donation box on your table. Thank you!

**APPENDIX E**

**Donation Appeal for ‘Healthier Tomorrow’**

A Healthier Tomorrow is a national non-profit organization that seeks to empower individuals to develop the skills to overcome the epidemic of obesity and sedentary lifestyles focusing on changes in communities around the country to improve nutrition and increase physical activity. This national organization fosters sound nutrition and good physical activity in schools and communities, envisioning a country where everyone develops the lifelong habits necessary to promote health.
APPENDIX F
Definitions for Four Levels of Moral Boundaries

Inner circle of moral concern: these entities deserve the **highest level of moral concern and standing**. You have a moral obligation to ensure their welfare and feel a sense of personal responsibility for their treatment.

Outer circle of moral concern: these entities deserve **moderate moral concern and standing**. You are concerned about their moral treatment; however, your sense of obligation and personal responsibility is greatly reduced.

Fringes of moral concern: these entities deserve **minimal moral concern and standing**, but you are not morally obligated or personally responsible for their moral treatment.

Outside of moral boundary: these entities deserve **no moral concern or standing**. Feeling concern or personal responsibility for their moral treatment is extreme or nonsensical.

APPENDIX G
Donation Appeal for Pediatric Cancer Foundation

Founded in 1970, Pediatric Cancer Foundation is a non-profit charity. It raises money to provide medical care, food, and shelter to young cancer patients around the world who are in poverty.

Our mission is simple: to provide help and love to kids who are in need and let them know that they are not being left alone.

But to achieve that, we need your help.

APPENDIX H
Analogies Used in Experiment 4

1. Baker : cake :: scientist : discovery
2. Answer : riddle :: key : lock
3. Father : son :: inventor : invention
4. Foundation : house :: premise : argument
5. Knee : kneepad :: snail : shell
6. Law school : lawyer :: vineyard : wine
7. Movie : screen :: lightning : sky
8. Rectangle : perimeter :: nation : border
9. Saxophone : jazz :: typewriter : poetry
INTRODUCTION: TOWARD AN OBJECT-ORIENTED LIFE OF THINGS

Over the past three decades, a material turn in the social sciences brought non-human objects into empirical and theoretical examinations of social life. The work of Appadurai (1986), Kopytoff (1986) and Miller (1987), in particular, fueled multiple productive streams of consumer research. In this conceptualization, the objects produced and consumed by people have social lives, interdependently tied to personal, collective, and societal uses and values (Appadurai 1986). This perspective aided the development of an important body consumer research oriented toward the symbolic properties of material objects (e.g., Wallendorf and Arnould 1988; Belk, Wallendorf, and Sherry 1989; Lastovicka and Fernandez 2005) and the constantly changing and contingent human-object relations that make up social life (e.g., Epp and Price 2010; Canniford and Shankar 2013; Martin and Schouten 2014).

Objects are part of all human practices, and these material things shape and give meaning to consumers’ lives as much as consumers shape and give meaning to things (Miller 2010b). However, in focusing on the symbolic importance of objects, these theories abstract away from objects uniquely material value and characteristics. Conversely, while assemblage theories move away from meaning-based models of human-object interactions to emphasize the interconnected, relational nature of social and material life (Law 1992; Latour 1996; DeLanda 2006), they can also too easily hide or lose sight of the material essence of the object itself within a vast network of connections and effects.

In his Object-oriented Ontology, Harman (2016) makes the provocative claim that “everything has an autonomous essence, however transient it may be, and our practices grasp it no better than our theories do” (16). That this essence is inherently opaque and ambiguous gives objects their power to surprise and to act on objects outside of their human relations (Harman 2016), which the analytical tools offered by a network or assemblage are analytically unable to grasp.

We follow Harman’s philosophy by foregrounding the material life of the object within its social relations, rather than focusing on these relations themselves. Although material life still drives and is driven by these relations, foregrounding the object’s essence enables a more precise conceptualization of the end of object life and of interventions to alter an object’s life trajectory. These are crucial aspects of an object’s social and material life that have yet to be examined in consumer research. By examining an object’s materiality against the backdrop of its relationships with other actors, we begin to understand the nature of both materiality and social life more fully. Further, we utilize the concept of material fragility to extend Harman’s object-oriented ontology, enabling a more precise and empirically-grounded conceptualization of the end of object life than his philosophy currently provides.

Our research demonstrates empirically that the ambiguity inherent in an object’s integrated, dynamic essence emerges from material forces that serve to integrate or disintegrate the assembled components of the object. An object-oriented ontological perspective also allows us to uncover the processes and relationships that create a desire among human beings to intervene between the material forces of fragility and durability that shape objects’ life trajectories. We also illustrate the unique nature of service exchanges that involve irreversible changes to an object’s compound essence.
THE SOCIAL LIFE OF THINGS

Appadurai (1986) and Kopytoff (1986) propose a biographical or lifecycle approach to understanding material objects and their influence and relations with people. In their view, the objects produced and consumed by people have social lives, interdependently tied to personal, collective, and societal uses and values. An object moves through life stages marked by various degrees to which the object is exchangeable, with “the commodity situation” being a key focus of both theorists. "The commodity situation in the social life on any ‘thing’ can be defined as the situation in which its exchangeability (past, present, or future) for some other thing is its socially relevant feature" (Appadurai 1986, 13). Kopytoff (1986) explains that objects move along a continuum between commodification and decommodification, which he terms singularization. Singularization is a process of removing objects from the commodity sphere by virtue of becoming uniquely personalized and unexchangeable. An object’s position along the spectrum between the two polar ideal types of commodity and singularity can never be permanently fixed, this grey area is a site for social conflict and contestation, as well as individual inconsistencies in object valuation and use.

Miller (1987) similarly argues for a view of objects as interdependently linked to the human experience. In his view, “Things make people just as much as people make things” (Miller 2010b, 135). Miller follows Bourdieu (1977) in his approach, viewing objects as an integral part of our embodied understandings and practices. Miller’s conceptualizes a theory of material practice. These practices are learned not only through social experiences, but also through “the humility of things” (Miller 2010b, 53). Humble material objects “help you gently learn how to act appropriately… Before we can make things, we are ourselves grown up and matured in the light of things that come down to us from the previous generations” (Miller 2010b, 53). The sari worn traditionally by many Indian women shapes their every movement and relationship (Miller 2010b), just as blue jeans shape the social interactions and lifestyles of local residents and new immigrants in London, where jeans are worn as a common denominator garment (Miller 2010a). Individuals and society as a whole are defined by practices that are produced and reproduced within an interconnected system of people and their material things.

In consumer research, these theorizations about materiality have led to fruitful examinations of the processes by which possessions become singularized or “sacred” (Wallendorf and Arnould 1988; Belk et al. 1989), and the modes by which these possessions and their singularized meanings evolve and get transferred between people and groups (Curasi, Price, and Arnould 2004; Epp and Price 2010; Ture and Ger 2016). These studies typically focus on special, highly valued possessions such as heirlooms, but Kopytoff (1986) also notes that “to be a non-commodity is to be ‘priceless’ in the full possible sense of the term, ranging from the uniquely valuable to the uniquely worthless” (75). Additionally, certain objects such as medicines are considered terminally singular, meaning that they can be exchanged only once—and only with the individual for whom they were singularly produced (Kopytoff 1986). Singularization plays a role in the way that the lives of both especially treasured and seemingly mundane objects interact with human lives:

“There is clearly a yearning for singularization in complex societies. Much of it is satisfied individually, by private singularization, often on principles as mundane as the one that governs the fate of heirlooms and old slippers alike—the longevity of the relation assimilates them in some sense to the person and makes parting from them unthinkable” (Kopytoff 1986, 80).

In consumer research, consumers’ “heirlooms” have received a great deal of attention, while their “old slippers” seem to have been somewhat overlooked. Studying the social life of mundane objects—common items such as footwear and clothing, whose value is typically derived through functional rather than symbolic meaning—has the potential to uncover aspects of object life that have been missed in prior
research. However, given the ease of overlooking mundane objects, consumer research requires a theoretical approach that brings objects to the foreground and a substantive context that sets up the lives of mundane objects as particularly salient to consumers.

**OBJECT-ORIENTED ONTOLOGY**

An object-oriented ontological approach (Harman 2016) provides a perspective that brings objects back to the foreground without focusing on their symbolic properties, which serve only to bring attention back to the humans to construct these meanings. An object-oriented ontology is not a theory, per se, but instead a new approach to understanding the existence of things. Object-oriented ontology avoids focusing on symbolic value, network effects and connectivity, or physical components in defining objects.

Harman (2016) argues that explaining objects as the sum of their components undermines the object’s ontological independence from its constituent parts. What an object is made of is not the same as the object itself, as Harman (2016) illustrates, “If we had perfect mathematized knowledge of a dog, this knowledge would still not be a dog” (28). Harman also argues that although network-based theories of objects (Law 1992; Latour 1996; DeLanda 2006) will advise researchers to “follow the actors,” object-oriented theory is also interested in following the dogs that did not bark, or the barking dogs at moments when they slept” (40). An object is more than its relationships with and effects upon humans and other objects.

Harman introduces two analytical concepts that allow material objects to return to the foreground of study. First, Harman draws on the Kantian concept of the “thing-in-itself” as a material entity that exists outside the analytical grasp of human comprehension (Kant 2003). In Harman’s theory, objects have a material essence that exists autonomously from their relationships or their effects. Objects can, at times, do things that we don’t know about “or even nothing at all” (17). This essence, although never permanent, provides a stabilizing force to material life.

Second, due to the relative stability of an object’s autonomous essence, material change generally occurs intermittently rather that constantly and gradually. Harman compares this intermittent change to punctuated equilibrium theory in evolutionary biology, in which species tend to evolve quickly during moments of great change rather than gradually through slow, continuous processes (Eldredge and Gould 1972). Objects similarly move through several stages throughout their lifespan, punctuated by “symbioses,” which Harman defines as special relations that irreversibly change the reality or essence of an object, shifting it into a new life stage (Harman 2016, 47–49). To understand social objects, researchers must hunt for symbiotic events—moments and conditions that lead to irreversible changes in objects’ life trajectories. Repair is such a moment of symbiosis—a “genuine point of irreversibility” in which an object’s essence changes permanently. Consumer repair practices also present a unique perspective on materiality by offering a context in which the lives of even mundane objects become salient.

**FRAGILITY AND REPAIR**

Researchers have studied the first two of Jacoby’s (1978) three facets of consumer behavior in detail, namely acquisition and use. But the third facet, disposition, has largely been neglected in our literature with only a few exceptions (Price, Arnould, and Cusati 2000; Lastovicka and Fernandez 2005; Albinsson and Perera 2009; Ture 2014). Despite the social, economic, and environmental importance of understanding what happens after things pass through consumers’ hands, the post-use stages of consumption have received very little attention. Repair is a particularly important, yet overlooked, manifestation of disposition. In many ways repair embodies all three facets of consumer behavior: by repairing rather than disposing of a possession, a consumer essentially re-acquires it for continued use.
We argue even further that repair is one of the most basic and fundamental forms of consumer behavior. Repairing is a practice that distinguishes human beings from other species, “something we engage in every day and in almost every dimension of our lives” (Spelman 2002, 1). People repair automobiles and relationships, mend clothing and artwork, reconstruct buildings and memories, and restore antique objects and environmental habitats. Repair metaphors and allusions permeate the English language. Philosopher Elizabeth Spelman (2002) argues, argues that through repair human beings acknowledge the fragility of their lives and environments, while at the same time “resisting or delaying the inexorable march of decay and disrepair” (23). Repair work is an indispensable practice within family and social relationships, medical practice, the justice system, and nearly everywhere in between (Spelman 2002).

Despite its importance, consumer research has devoted almost no attention to repair. Gregson, Metcalf, and Crewe (2009) illustrate ways that repair featured in several case studies of important consumer possessions, and the authors conceptualize repair as a means for keeping objects integrated within consumers’ homes. Epp and Price (2010) similarly describe repair processes as one of many practices in an assemblage surrounding a singularized household object. However, these accounts focus on the symbolic and relational functions of objects rather than foregrounding the life of the object itself and how its essence influences the practice of repair.

There are several possible reasons for a lack of scholarly attention to consumer repair. First, repair seems to push against the dominant capitalist logic of liquid consumption prevalent in contemporary Western consumer culture (Bardhi and Eckhardt 2015). Perhaps this is why Patagonia’s CEO calls a mundane practice such as clothing repair “a radical act” (Marcario 2015). However, scholarly and societal inattention toward repair may also hint at even deeper existential concerns. Although acknowledging repair’s potential to challenge capitalist consumerism, Spelman (2002) reminds us that repair also forces a uncomfortable reminder of the fragility of life itself:

“You can’t bring up repair without bringing up all manner of facts about humans and the world we inhabit that perhaps for the most part we just don’t like being reminded of—that we are damaged goods, that we live in a damaged world. Repairers… undertake to halt the march toward extinction, but their very existence reminds us that such extinction is inevitable” (136).

Just as people struggle to make sense of the complex and messy realities surrounding repair work conducted at the end of human life (Glaser and Strauss 1965; Gawande 2002, 2014), consumers seem to struggle with the fragility of object life made salient by repair practices. Paradoxically, however, interest in repair seems to be growing. In the United States, cell phone repair is a growing $4 billion industry (IBIS World 2016). In the United Kingdom, textile mending is gaining popularity (Lewis-Hammond 2014) and a new generation of consumers discovered shoe repair during the recent economic recession (Teather 2009). Worldwide, online repair groups (iFixit 2016) and local community repair shops (Repair Café 2016) are similarly gaining prominence.

Given both the substantive and theoretical importance of repair, this exploration of consumer repair practices provides an important contribution to contemporary consumer research. Moreover, we contend that repair is sufficiently important and under researched in consumer research that the context itself warrants investigation. In this light, we explore the material and social complexities of shoe repair practice.

**STUDY CONTEXT**

We examine the unique nature of repair service exchanges in the context of shoe repair, which provides a particularly rich and provocative case study. Shoes are a nearly ubiquitous consumption objects across cultures and historic time periods. Archeological evidence suggests that humans began making and
using footwear during the middle Paleolithic era, at least 40,000 years ago (Trinkaus 2005). Written records provide a clear trace of shoe and sandal use dating back to ancient Egypt, and the complementary trades of shoe making, shoe repair, and leather work spread across continents and civilizations over the next three millennia (Wright 1922).

Shoes are simultaneously mundane and extraordinary. For millennia shoemakers have created elaborate footwear for the sake of art and fashion, as well as durable podiatric protection for working, walking, and warring women and men. Shoemakers and cobblers must conduct their work with “two principle ends in view—Utility, for the shoe must be strong and serviceable; and Presentability, for it must satisfy the eye” (Wright 1922, 7). But however strong the shoe or boot, the consumer continually walks the object closer and closer to the end of its life. By virtue of acquiring and wearing a pair of shoes the consumer inevitably will have to face the end of that object’s life. At some point, the shoe must either be replaced or repaired.

This continual wear also serves to singularize footwear in a unique way. By walking and wearing, shoes and boots mold and conform to an individual’s feet and activities. This process is different from the singularization of objects discussed in prior research, where sacred meaning and inalienable wealth are packaged into special objects for transmission to other individuals (Appadurai 1986; Curasi et al. 2004; Epp and Price 2010). In the case of shoes, singularization usually occurs incidentally through mundane use. Additionally, the special meaning and personalized fit or function of footwear cannot usually be transmitted to others, and. An ancient idiom warns against the improper expectation of an undeserved inheritance by comparing it to “waiting for a dead man’s shoes” (Wright 1922, 207).

Shoe repair also provides additional practical benefits as a study context. The economic value of a pair of shoes is generally low enough that repair can be an elective route for many consumers—unlike automobile or home repair, for example—but high enough that replacement is still not painless. For myriad reasons, over the course of the twentieth century, the number of shoe repair shops in the United States dropped precipitously. Data from the US Economic Census shows a decrease from more than 60,000 shops in the 1930s to around 1,000 by 2010. Studying shoe repair provides a unique window into a service encounter that may itself be nearing the end of its life. The precarious state of the shoe repair trade makes the end of object life all the more salient for consumers and cobblers who enact this practice of repair.

DATA COLLECTION AND ANALYSIS

The practice of shoe repair involves an interdependent network of actors, including consumers, service providers, shoe manufacturers, suppliers, tools and materials. To uncover the unique nature of repair service exchanges it was necessary for our data collection procedures to explore these interdependencies rather than focus solely on a consumer perspective.

We conducted ethnographic fieldworks as participant observers in fifteen shops that provided footwear repair services. These shops were located across four urban areas across the southwestern and northwestern United States. During this stage of data collection we observed and interviewed 27* shoe repair service providers and interacted with dozens of shoe repair customers. The shops we studied spanned a wide range of expertise, customer bases, and cobbler demographics. Following standard ethnographic procedures (Emerson, Fretz, and Shaw 2011), we took handwritten and audio recorded jottings to capture key quotations, observations, and insights during these cobbler visits. Photographs and videos supplemented these jottings, which were promptly expanded upon as detailed typed or transcribed field notes. When appropriate and permitted, we made audio recordings of our interviews with cobblers, which were also transcribed. Using the cobbler shop as the foundation of our data collection efforts allowed us to develop an understanding of the repair practice as it arose at the intersection between consumers, service providers, and material objects. This meso-level ethnographic analysis moves beyond meanings commonly
uncovered from the consumer perspective in our field (Arnould and Price 2006). This was a necessary methodological decision made to further our understanding of the repair intervention.

We triangulated our ethnographic fieldwork with insights gained through 15 months of online data collection. This process included sampling specific discussion forums and blogs that provided multiple perspectives on the shoe repair exchange. For example, we followed forums created and contributed to by construction workers, rock climbers, luxury heel fans, and men’s dress shoe connoisseurs, among others, to compare and contrast the meanings each group held regarding shoes and the shoe repair exchange. During this process, jottings and field notes were written in addition to the collection of photographs and quotations from participants in these online fields (Kozinets 2015). We also obtained a research dataset from the online consumer review website Yelp, which included 1,102 written reviews of ninety shoe repair businesses across five US cities. These textual data provided a unique perspective on consumers’ shoe repair experiences, especially with regard to their expectations and assessments of the service encounter.

Finally, we conducted in depth interviews with nine strategically sampled consumers. These interviews allowed us to probe more deeply on themes that had emerged through our ethnographic fieldwork and online research. Informants provided us with a richer, more nuanced understanding of specific types of repair services (e.g., western boots, rock climbing shoes) from specific perspectives (e.g., long-time repair customers, consumers just discovering the existence of shoe repair services).

We analyzed our field and online ethnographic data following an iterative approach, in which new data were reflexively analyzed and compared with prior findings, assumptions and theoretical perspectives (Burawoy 1998; Emerson et al. 2011). Analytical memos were regularly written to synthesize these insights which were then discussed as an ethnographic team (Belk, Sherry, and Wallendorf 1988) and taken back into the fields where we sought to gather rich, varied, contextualized and “densely textured” data that could both construct and test emerging explanations (Katz 2002, 464). Yelp review were analyzed and coded using nVivo qualitative data analysis software. We began the analytical process with open coding, revising codes iteratively as various themes emerged from our fieldwork and interview data and analysis.

**FINDINGS**

Sister Luanne’s organ shoes have the inner corner of the heels worn right off from pedaling. The shoes are ready to discard, but she begged me to fix them if possible, since they have the narrow heel and toe combination she needs for playing the organ. She likes thin soles, so as to be able to feel the pedals, so I won’t replace these, even thought they are nearly going into holes. I pry off the worn lifts reflectively, thinking of the beautiful music that pours out of sister through her nimble feet and hands. (Day 2013, 15)

This excerpt from the memoire of a Benedictine nun and convent community cobbler delivers a vivid illustration of our key findings. We find that shoes have an autonomous material essence that is both greater than and distinct from the sum of their components, endowing shoes with a powerful yet ambiguous physical singularity. As with Sister Luanne’s organ shoes, this essence emerges from the tension between the material forces that hold the shoes together and those that threaten to disintegrate them. External material forces of fragility act on shoes’ internal durability, resulting in inevitable aging and decay but also personalized form and meaning.

Consumers such as Sister Luanne attempt to face and resolve the uncomfortable tension between the forces of durability and fragility by intervening through shoe care and repair. These interventions permanently alter the life trajectories of shoes. Care and repair interventions are incredibly complex and uncertain due to the ambiguous durability of a shoe’s material essence and the resulting ambivalence that
humans feel toward them. Both cobblers and consumers experience ambiguity and ambivalence toward shoes and each other, with interactions between these actors leading to decisions about how, when, where, and why to repair. Other actions such as use, disposal, repurposing, and restoration can also alter object life trajectories. However, we find that repair is unique because it requires irreversibly altering the object’s material essence in order to extend its life. Whether successful or not, repair permanently punctuates the normally gradual decline of object life.

**Fragility, durability and the social life of shoes**

Consumer narratives about shoe wear, tear, and repair are replete with language and metaphors of life and death. Consumers write Yelp reviews describing shoes they have “worn to death.” Others have shoes that they “thought were goners” or “thought were dead forever.” Repair is discussed as a life-saving intervention for these dying objects. Shoe repair “breathes new life” into footwear purchased second hand, brings western boots “back to life from the depths of Hell,” provides “a second life” for Christian Louboutin heels, and prevents aging shoes from having to “die a premature death.” Another Yelp reviewer posted the following review after a successful boot repair service:

I have a ten-year old pair of Italian-made Kenneth Cole's that are the most unique and beautiful shoes I've ever owned, and I literally want to wear them for the rest of my life. Hell, I want to be buried in these shoes, since all the mourners will be saying, ‘Damn, that guy had taste.’ These beauties have been in need of new soles for about four years now, and I have been reluctant to give them to just anyone, only to see them ruined. No, I needed a specialist. I needed the Mayo Clinic for shoes. I'm proud to say that Sal’s is the Mayo Clinic.

This consumer, as with many of our informants, experiences tension between their shoes’ fragility and durability in multiple ways. The shoes are singularly unique, with irreplaceable material and aesthetic qualities. The consumer hopes to continue using the shoes for the remainder of his life, but at the same time acknowledges their vulnerability to forces external to the shoe. A failed repair attempt, for example, could disintegrate the fragile essence of his shoes. On the other hand, postponing a repair intervention simply enables a slower but still inevitable process of disintegration.

The life trajectory of a shoe, as illustrated by figure 1, can be described as a process of integration and disintegration. A shoe becomes an autonomous, integrated essence through processes of assembly and individualization. However, external material forces constantly act upon the shoe, exploiting its fragility and threatening the durability and cohesion of its important yet fleeting material essence. During its life course only a shoe’s past trajectory is certain, future trajectories are inherently ambiguous and unknowable. Consequently, judging the amount of “life” remaining in a shoe is a nuanced and problematic assessment for both consumers and cobblers. Repair interventions attempt to alter a shoe’s life trajectory by increasing its internal durability, yet each intervention also holds the potential to destroy the shoe and cause an untimely death.

The timing and pace of shoe and boot life trajectories differ across the diverse experiences of our online and offline informants and their equally diverse footwear. However, the general order and processes involved are quite consistent. These are described in detail through the following section. Table 1 summarizes these key findings with data examples that supplement those included in the text.

Repair requires that consumers face the fragility of their footwear’s lives directly. But in facing life’s fragility, repair provides a method to temporarily resist the end of object life. A Yelp reviewer implicitly acknowledges repair as a temporary extension of object life:
“So far, John has rescued countless pairs of shoes, two purses and three suitcases for me. His work is good, consistent. And, he is honest about what he can/can't do to fix your stuff. I think it pains him a bit to see how I sometimes love my shoes to death but he does his best to breathe some life back in to them… It's worth it if I can get another year or two out of my favorite Cole Hahn or Donald Pliner or Kenneth Cole or oh I love shoes....” (Yelp)

This consumer understands that shoes will not live forever. In fact, the repair process seems to have defined a finite life expectancy, only “another year or two” in this case. Yet the consumer continues to bring shoes to John for extensions on their lives.

Engaging in repair also makes objects seem disturbingly susceptible to the fragility of their material lives. Repair exposes shoes and boots to the possibility of a sudden or unexpected end brought on by a failed repair attempt. This risk makes the decision to repair particularly challenging.

For example, until Nathan received a personal recommendation from one of the researchers, he felt unable to trust local cobblers due to their mixed reviews on Yelp. Yet he was also reluctant to pay the more than $150 US it would cost to ship his worn dress shoes to the United Kingdom for repair by the original manufacturer. “I was so torn between sending them in to be repaired and getting new shoes. I was conflicted.” He admitted that he would likely have purchased a less expensive replacement while holding onto his old Church’s Oxfords, “Hoping that one day I find somebody that would work with this type at a reasonable price.” His wariness is especially interesting because he initially expected his shoes to last indefinitely—he read reviews that said “These shoes are going to last you for the rest of your life.” When the heels and soles began to wear thin, Nathan thought he must have bought a defective pair until the manufacturer informed him that his shoes required resoling work in order to prolong their lives.

Deborah’s (female, 50s, interview) repair philosophy grew out of her upbringing on a remote homestead where she learned to sew, hunt, and perform car maintenance at an early age. Now a stay-at-home parent with adult and pre-teen children and a spouse with a well-paying white collar job, she still tries to repair everything from her $600 western boots to her $30 loafers. When possible Deborah and her husband perform repairs to furniture, clothing, automobiles, and other items by themselves. If a repair project is beyond her range of skills or tools, she takes it to a professional seamstress, mechanic, or cobbler. Her children often consult her when they have broken or worn out footwear or clothing, and she helps to determine whether a repair is “worth it.” Sometimes repairing is simply uneconomical, as when replacing a pair of shoes would cost half the price of repairing them. Still, the tone of Deborah’s voice is pained and reluctant when discussing the decision not to repair something, such as a well-fitting pair of discount dress shoes. Extending the useful life of shoes was something that fulfilled her deep, Christian-based desire to conserve significant memories and material resources:

“I want to keep these memories. I want to keep these shoes, like experiences in people's lives. Well, I have a life in those shoes or that purse or some sentiment to this. Now, there are some things that aren't sentimental, but I want to extend it. I want to be a good steward... You don't have to get rid of them. You can take them into the cobbler and work out something with him that you can do to add more life to them.”
Figure 1: The life trajectory of a material object
Table 1: Processes of integration and disintegration

<table>
<thead>
<tr>
<th>Life Trajectory: Integration</th>
<th>Fragility (an object's susceptibility to external material forces)</th>
<th>Durability (an object's immunity or ability to resist external material forces)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individualization: compromises to a shoe's material form allow it to develop its own unique material essence.</td>
<td>Assembly: meanings, materials, and competences are combined in order to stabilize a shoe's essence.</td>
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<td>Break in: the shoe yields to external material forces, altering the texture and shape of the shoe</td>
<td>Fortifying: materials added to the shoe in order to increase its resistance to external material forces</td>
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<td>Building character: physical scars and signs of aging provide meaningful, symbolic value</td>
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<td>Wearing out: consumer continues to use shoes until completely &quot;dead&quot;</td>
<td>&quot;As a guy who owns more footwear than he probably should, I've found that my best looking shoes aren't the ones that were most expensive. They're simply the ones I've owned the longest, and thus, have been worn the most. The nice thing about quality shoes is that they're made from high-end, full-grain leathers, which not only last a long time, but also develop a beautiful patina... Personally, I like how shoes look when they age naturally – that is, with regular wear and proper maintenance.&quot; (Blog post)</td>
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<td>Gifting: consumer gives shoes a second life by donating or gifting before complete disintegration</td>
<td>&quot;I stopped in yesterday, but alas, it was too late; sign on door says closed at 5:30; but with the huge windows I could see the entire [repair] shop, very cool antiques; I will go back with my beloved super comfortable old shoes and boots that I've saved in hopes of a shoe repair magician to bring them back to life.&quot; (Consumer, online discussion post)</td>
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"I've got oils for my cowboy boots. These I use mink oil on. It just waterproofs it and keeps the leather from wearing down, cracking and doing anything like that. So these, I always rub down with mink oil." (Josh, consumer, 30s, interview)
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<th>Ridding: consumer disposes of shoes, marking the end of their social life</th>
<th>I don't think I would repair my sandals. They get pretty worn, you know, after a few seasons. I wouldn't repair them. I would just throw them out... They get pretty shot. (Judith, consumer, 80s, interview)</th>
</tr>
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<tr>
<td>Repairing: consumers attempt to radically alter shoes' life trajectory through adjustments to their material essence</td>
<td>”I found the need to see if one of my leather boots could be salvaged as the heel was basically down to a nub... When I come back to pick up my shoes, the girl working the front desk grabs my shoes, which do not look like the same pair. I honestly think that they look brand new... I am so glad that these boots were fixed and I think that I saved myself some cash by having these repaired. I honestly didn't know that getting your shoes repaired could almost turn back the clock!” (Yelp review)</td>
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Assembly: integration through durability

Shoes become a unique, integrated compound essence through processes of individualization and assembly. Through these integrative processes, even the most inexpensive or mundane shoes can become physically singular and irreplaceable. Considering her dance heels and motorcycle boots, one Yelp reviewer wrote, “We all have them—that perfect shoe; it fits like a glove and defines our personal sense of style.” Obtaining a shoe the “fits like a glove” first requires a specific combination of assembly to produce a shoe with the right material dimensions. For our informants, the singularity of shoes is more physical than symbolic. However, a physically unique pairing of feet and footwear makes shoes less exchangeable, and hence singular in the sense that Kopytoff (1986) describes.

Janet (female, 30s) has narrow feet that generally require orthotics or special inserts in order to fit into standard-sized shoes. She talks about the lengths she will go to in order to preserve the treasured red heels that actually fit her feet well:

If it's going to cost just as much to get your shoes repaired, then go get new ones—except for the ones that are your unbelievable, favorite shoes that you'll never give up on, which I have a pair of those… They're super resilient. I mean, I've broken both the heels before. I've worn the heels down to the metal nothingness and had them repaired. On the inside of the shoe, all the lining of the shoe is just destroyed. Honestly, I will probably wear them until I break the actual heel all the way off of them because they're pretty easy too, in that I've been wearing these so long and I haven't ripped the leather to the point where you can't fix it. It wasn't anything special that I got them. They're not a gift or anything like that. I think I just bought them, probably, at DSW or some discount shoe store.

When consumers like Janet find shoes or boots that fit and function properly, they consider them precious and irreplaceable regardless of their original price tag. Jane (female, 20s, field notes) sent a pair of climbing shoes for repair because it was hard to find shoes that fit her “tiny feet with super wide man toes.” Another Yelp reviewer said, referring to his favorite dress shoes, “I would rather buy a new pair of them but they don’t make them anymore and trust me, I looked.”

Processes of material integration continue well beyond the original manufacturing process, as consumers and service providers engage in activities that fortify footwear and arm consumers with knowledge and relationships integrated with their shoes and boots. Fortification involves the addition of materials to a shoe or boot in order to increase immunity and the ability to resist external material forces that threaten its durability. An excerpt from our field notes provides an illustrative example of fortification:

[A customer] brought in a pair of dress shoes that he told me were 10 years old. They had leather soles, and he wanted to get them resoled because they looked pretty worn. "I love these shoes," he said. The brand was To Boot New York. Paul [the cobbler] said that the leather soles were actually in good condition despite looking worn. He said that the climate in [the Northwest] is just really hard on leather soles. He recommended putting rubber soles over top to make the soles last longer. He told the man that a lot of people would bring brand new shoes in to have this done and he recommended it. The man just nodded his head. It would cost fifty-five dollars to have new heels put on, which also needed to be done, as well as new rubber protective soles put over top of the leather soles. (Shoe repair shop, field notes)

Paul’s suggestion to add materials to the shoe’s vulnerable leather soles illustrates a common practice of shoe fortification. The addition of a thin piece of protective rubber glued to the sole is a common cobbler job in areas with inclement weather. The rubber, which can be color-matched to the shoe or boot, is glued to the bottom of the shoe to provide protection from rocks, rain, and snow. Another cobbler
informant developed a contract with several department stores that offer rubber sole reinforcement as a value-added service whenever a customer purchases new men’s or women’s dress shoes. The Nordstrom contract comprises half of this shop’s work. Similarly, customers requested rubber reinforcements to cover areas where crampon spikes started tearing their boots’ fabric or asked for extra layers of leather or rubber to be sewn or glued over portions of work boots or dancing shoes that received heavy wear.

However, even as cobblers and consumers attempt to bolster internal durability, they expose footwear to an always-present fragility or susceptibility to external forces. The tension between fragility and durability is evident even in attempts to fortify shoes and boots. Sometimes cobblers will offer or conduct creative protections in excess of consumers’ initial requests. A Yelp reviewer’s shoe suffered some damage, for example, and the reviewer brought the pair to a cobbler. “After taking a look at them and doing some thorough tugging on the straps,” the review reported, “[the cobbler] said she would repair the broken strap and reinforce all others.” Like many consumers, this reviewer is surprised yet appreciative of the cobbler’s thoughtful reinforcement services. We also find, however, that such cobbler-initiated reinforcements can be risky. Others complain that unrequested reinforcements ruined their shoes’ original aesthetics. One Yelp reviewer who asked for “a bit of reinforcement” to the soles of some ballet flats was horrified to see the shoes “returned to me with a new, hideous, incongruous, chunky sole and heel.” Fortification, like any intervention into an object’s life, permanently alters a shoe’s life trajectory—whether for better or worse.

Many other protections, such as waxes, oils, and other waterproofing compounds, are self-administered by consumers. Nathan (consumer, 20s, interview) said, “rather than always getting new things I can continually use the same pair of shoes, but it just has to have maintenance.” Nathan regularly shines his dress shoes, which he wears to work daily. Others apply oils and conditioners to keep leathers moist and healthy. Others store shoes with shoetrees inside to maintain their original shape.

We also find that cobblers try to arm consumers with the relationships, knowledge, and materials they might need to deal with future compromises to their shoes’ material integrity. We noted in our field notes that “the first thing customers see when they walk into the shop is a display of shoe polish and conditioners.” This retail practice was followed across nearly every shoe repair shop we visited, and cobblers provided instructions to consumers on how to use these products. Additionally, a national shoe repair trade association has operated multiple online advice forums offering to “help education consumers by providing professional advice.”

However, we still find that “arming” is a weak link in the shoe repair process. Most consumers are inadequately equipped when their shoes or boots break or wear down. They have insufficient tools, knowledge, and relationships for guiding their actions. Mainstream retailers generally provide little support or training on footwear maintenance or repair. Inexperienced consumers preface forum posts with statements about how “new” they are to shoe repair, before asking basic questions about how to use shoe conditioners or find a local cobbler. “Can my favorite dress shoes be saved?” is a common refrain, and many wondered whether they could conduct complicated repair procedures at home with common household supplies. Our consumer informants, in general, struggle to make sense of the deterioration of their shoes.
Individualization: integration through fragility

A shoe or boot’s physical singularity is based not only on processes of assembly but also of individualization. Paradoxically, individualization relies on the footwear’s fragility and susceptibility to external material forces. We find that personalization often requires compromises to a shoe’s produced form that allows it to develop its own unique material essence. Individualization takes place in two main ways: breaking in and building character.

Most consumers describe a break-in period of days, months or years following a footwear purchase. During this stage, shoes and boots soften and mold to become ideally comfortable and wearable. Leather rock climbing shoes, for example, typically stretch one-half size during several months of heavy use, and even synthetic shoes can stretch up to one-third size. Like many serious rock climbers, Colin (male, 20s, fieldwork) purchases climbing shoes that are significantly smaller—three European sizes, in his case—than his everyday “street shoes.” Comparing his new Vans sneakers side by side with his newest climbing shoes, it is difficult to imagine that the same feet could squeeze into both pairs. The combination of tight fitting shoes and stretching through use means that used climbing shoes can uniquely match the contours of each climber’s foot. Another rock climber, Tom (consumer, 20s, interview), explained that breaking in his leather climbing shoes is really a continual process:

You've got to sweat in them a little bit more—stretch that leather out. I have a pair of shoes that I totally forgot about and got them out of the closet the other day. It was like, “Oh man, these are stiff again.” I wore them in the gym for like an hour and a half, and it was like, “Oh yeah, there we go.”

As illustrated by Tom’s quotation, breaking in is not a life stage with a definitive end. Tom’s shoes are in a constant state of change as they react to and act upon their external material environments. Shoes have to be fragile and susceptible to these external material forces in order to break in. While breaking in has the desirable outcome of singularly comfortable footwear, it is part of the same disintegrative process that eventually leads to the complete destruction of the shoe.

Consumers experience similar, although perhaps slightly less dramatic, form-fitting results in other genres of footwear—particularly in shoes and boots constructed from full-grain leather. One online discussion forum post wrote, “The [Red Wing] boots took quite a while to break in from what I remember. I had trouble putting them on without horns for probably a month. That said the longer I’ve had them the more comfortable they have become.”

Sometimes external material forces are applied strategically to speed up or supplement the breaking in processing. Consumers bring new shoes that don’t fit properly to repair shops for stretching and conditioning, in which leathers are softened with chemicals and stretched using a screw-driven apparatus that is placed inside a shoe to apply mechanical pressure that pushes outward on the leather. One Yelp reviewer explained that they made multiple trips to a local cobbler “to stretch pairs of two-hour (‘killer’) heels I thought would break-in over time.” However, these processes are risky because they require compromising the shoe’s material integrity. Another Yelp reviewer complained, “After pointing to the exact pain spot twice, the shoes are now stretched in the wrong area. I'm talking about [Louis Vuitton] and Prada loafers ruined.” We discuss the ambiguous risks and rewards of interventions like these in a later section of the paper.

The process of wearing also integrates symbolic or aesthetic meaning into a shoe or boot’s material essence. Part of this process of “character” development involves memories and emotions from experiences
shared with footwear—what one cobbler calls “good luck shoes.” Consumers treasure the shoes and boots that they got married in, completed an important race or hike, or travelled to interesting places with.

However, “character” is also an inescapably material phenomenon. For example, leather shoes and boots develop an aged patina over time. For connoisseurs of fine leather dress shoes, this look—marked by subtle changes in color and shine—is often highly sought-after and difficult to replicate. Consumers debate in online forums about whether a true patina can effectively be replicated during manufacture or whether “patina is earned through wear and tear, the accumulation of nicks, dirt, dye variations, etc.” Like craft-beer aficionados (Maciel and Wallendorf 2016), some consumers “experiment” with patina development techniques on various shoes and share results with each other. In another class of shoe consumption, construction workers brag about the battle scars borne by their boots. One brick mason jokes in a contractor’s forum, “No matter how nice a brick mason dresses, you can always tell he's a mason by looking at his boots.” Memories and meanings are inseparable from the physical transformation of shoes. These material changes arise from the constant tension between their durability and fragility that plays out during processes of aging and use.

**Breakdown: disintegration and fragility**

Material compounds break down naturally in the life course of objects. Shoes begin dying even before they reach the consumer. For example, the polyurethane compounds used in most rubber soles start breaking down the moment these synthetic mixtures are poured into molds. Still, aside from major tears or broken heels, the point when footwear no longer perform the stylistic, comfort, or use functions that consumers require is a hazy region. Consumers respond to the breakdown or decline of their footwear in several ways that either slow or expedite the disintegrative processes. These include wearing out, gifting, and ridding.

First, rather than preserving their shoes many consumers wear them out by continuing to use their footwear until perceived as completely “dead.” Rock climbers and long distance runners use terms from the human lifecycle to describe various stages of use and decline that footwear pass through. After their running shoes lose too much integrity to be safely used for long distance runs, one runner (consumer, online discussion post) said they will “demote them to hiking shoes, and then demote them to no-socks/quick-errand shoes, and then demote them to garbage because they smell like death.” This consumer squeezes every last drop of life out of shoes before finally pronouncing their expiration. Many consumers used the term “retire” to describe this final demotion. One runner in an online forum even posted a photo of himself enjoying a beer with his worn-out running shoes during their “retirement” ceremony. However, it is difficult for consumers to determine when a shoe or boot arrives at a new life stage where changes to its use may be required or appropriate. The following dialogue with Robert (consumer, 20s, interview) illustrates the challenge consumers face as their shoes begin to decline.

Robert: Where are these shoes at? They're retired but not expired yet. They're still just gym shoes right now. It's like, 'Okay, they're almost gone.'

Matt: That's super interesting. Is there a pretty clear line between expired and not quite there?

Robert: That's just everyone's choice. Am I finally tired of slipping off these little holds because my rubber's completely gone or rand's blown through, or do I keep on climbing in those until there's nothing left and I'm just climbing on my big toe?

Matt: That would be ‘expired,’ with nothing left?

Robert: Once you can see your toes I'd call it officially dead.
Matt: Is that the same as having the shoes ‘trashed’ or is that something different?

Robert: Trashed for me would be like you've gone crack climbing in them and you might've been ripped out of a crack because you fell, and your shoe's been ripped open or it doesn't function anymore. I mostly use trash lightly too, like, ‘My shoes are trashed.’ [That means] the rubber needs to be replaced, or whatever.

Matt: Got it. Truly ‘trashed’ is like they've met some kind of violent end.

Robert: The reaper's after them.

Robert illustrates how consumers use metaphors of life and death in their discussions and decisions about aging footwear. However, as with in the end of human life, consumers struggle to imagine shoes as “dead.” Rather than address and remedy maladies as they emerge, consumers may continue using shoes until completely unusable.

Even when original owners no longer perceive their shoes as usable, accepting their death in an absolute sense is still challenging. Rather than dispose of worn out shoes, many consumers choose instead to gift or donate them. In this way, consumers can shift the burden inherent in end-of-life diagnoses to someone else. When pressed about what he would do if his favorite dress shoes could not ever be repaired, Nathan (male, 20s, interview) said that he would donate them to a thrift store. “I wouldn't toss them. I try to think that most stuff that I'm done with, somebody else could definitely find use out of it.” This question lead to a few seconds of silence, after which Nathan asked if I could ask “an upbeat question.” Carol (consumer, 50s, interview) likewise desired to donate old shoes to the thrift store but added that she felt “even better” about giving them to someone she knew who could use them. When Carol began trying to get rid of her older shoes to combat closet clutter, she put most of these unwanted shoes “in the Goodwill pile” for an anticipated thrift store donation. This was possible because she usually doesn’t “push them to the end, to the garbage pile.” She also feels that, “It’s almost immoral to throw something out that someone could use. It would feel very guilty [to me].” Instead of disposing of them, Carol imagines a life beyond herself for her dying shoes.

Several footwear companies and non-profit organizations keep pick-up bins in retail stores and public areas to collect used shoes for donation or recycling. Shoe repair shops often sell, donate, or glean useable hardware and materials from shoes left abandoned by consumers. Josh (male, 30s, interview) responded to the hypothetical scenario of not being able to repair his worn-out western boots by saying, “I'd probably try and find a way to get it done. Or [my wife’e] grandma really wants to use all of my boots as planters and put plants in them. So I’d give them to her, I guess.” The future lives that Carol, Nathan, Josh, and others imagine for their footwear allow them to avoid facing the potential end of their shoes’ or boots’ lives. Donating, gifting, and repurposing provide a new, even if only imagined, lease on life to old shoes.

Finally, shoes and boots are deemed worthy of ridding via the trash bin when the consumer pronounces a definitive end to his or her footwear. At this point, footwear can be disposed. It should be noted that not all of our informants felt extreme reservations toward all of their shoes. What connected all these experiences was a common logic for ridding: that shoes or boots were no longer useful in any apparent way. Simply wearing footwear without attempts to halt their decline will lead to ridding eventually, but ridding must be justified through classification of a shoe or boot as materially dead.
Resistance: disintegration and durability

The discomfort felt regarding the end of a shoe or boot’s life can prompt resistance. This resistance occurs when people attempt to intervene in order to halt forces of fragility or boost object durability. Consumers resist their footwear’s material decline through sheltering, caring, and repairing.

First, consumers shelter footwear by storing shoes away from harsh material forces, slowing their disintegration. Josh wore through the sole of one pair of western boots and kept them stored at home, saying, “My wife wouldn’t let me get rid of these because I got married in them.” Although he now plans to send these boots to the cobbler, he kept them in home storage even before he knew that this was a feasible option. Yelp reviewers and online forum comments frequently referenced worn out shoes sitting in closets at home, exemplified by the written sentiment that “I had shoes that broke my heart to throw away.” Another Yelp reviewer who experienced a successful repair wrote, “I have to go through my closet and find the shoes that could use some attention paid to them before they get to the critically ill state of the recent ones that I brought in.”

Sheltering need not lead to repair, though. Jane, a professional rock climber in her twenties who receives free climbing shoes from a corporate sponsor, stores more than twenty pairs of worn, but not completely unusable, shoes in her closet. In addition, most cobbler shops have a backlog of shoes in storage that have been forgotten by customers. This problem is most severe in shops that accept mail-in repair work, since a shoe’s reparability cannot be accurately diagnosed until the cobbler assesses it in person. These shops have piles of un-repairable shoes awaiting a response from their owners about whether they want their old footwear returned or disposed. Many of these shoes remain in storage for months, as many owners do not return emails requesting them to make a decision. Essentially, these consumers shift the burden of ridding decisions to the shoe repair service provider.

When we conducted interviews in homes, several consumers brought out multiple pairs of old shoes or boots that are worn beyond reasonable wearability. Sometimes consumers tell us that these shoes are waiting for a future trip to the cobbler, but often the shoes are just taking up space. Storage may not keep an object “alive” but it does avoid the admission and uncomfortably “open awareness” (Glaser and Strauss 1965) of its death.

Second, instead of hiding old shoes consumers may instead engage in care and maintenance practices to extend their footwear’s life trajectories. Care and maintenance practices include cleaning, careful attention to use and storage habits, and application of shine, cream, or conditioner products. As noted previously, this can be a weak link in the material life trajectory of the shoe. Cobblers providing online advice often point out that blemishes perceived as serious by uninformed consumers actually could be fixed with simple maintenance products. One self-professed cobbler in an online forum replied to a consumer who said they had “ruined” a pair of shoes, “Some cream polish will solve [the discoloration] in a flash, just put a few coats on. Apply light layers, buff and repeat until restored.” Care and maintenance practices are small acts of repair that, if conducted regularly, can delay or reduce the need for major interventions done by shoe repair professionals. Cobblers generally apply polish or conditioner to maintain leather uppers whenever they add new soles or heels. Consumers do not necessarily care for all of their shoes equally. Ben (consumer, 20s, interview) regularly polishes a pair of dress shoes he purchased while living in Italy—shoes that he feels “sentimental” about—while generally neglecting the maintenance needs of his other dress shoes and sneakers.

Finally, consumers resist the material disintegration of their shoes and boots through repair. These include interventions that permanently alter a shoe’s integrated components in order to boost durability or lessen fragility. Given the tensions between fragility and durability described above, decisions about and practices of repair are complex and fraught with ambiguity and ambivalence. These are symbiotic events
in the sense that Harman (2016) describes, where circumstances, materials, and relationships come together in a way that irreversibly alters the essence of a shoe or boot. In the following section we describe how these interventions proceed as an interdependent relationship between consumer, cobbler, and shoe.

**Intervention and altered object life trajectories**

Repair represents a powerful life-altering intervention in the life of a shoe or boot. The opacity of a shoe’s material essence generates an uncomfortable ambiguity that problematizes its care and repair. These ambiguous properties also generate ambivalence toward the object, and these feelings and experiences shape the resulting decisions consumers and cobblers make regarding repair. A debate between two employees at one shoe repair shop illustrates:

> When Joe walked up to the front to get something, Anna pulled a pair of boots from a stack and said, “We’re taking these in, just so you know.” Joe looked at them and hesitated a bit. Anna said, “I know that we don't normally repair boots like this, but they were in really good condition so we said that we would.” Joe warned her that the materials wouldn't hold up and, not only that, but the way that they were constructed meant that the sole itself was curved more than most boots—which were normally quite flat—and that this would also make it a more difficult repair job. (Field notes, shoe repair shop)

No clear line between repairable and un-repairable exists for the boots in question above. This ambiguity means that reparability had to be negotiated between cobblers, consumers and the boots themselves. Anna’s and Joe’s ambivalence toward the repair is felt in their attraction to the possibility of repair and simultaneous repulsion from the complications that the repair will likely entail. Such ambiguity and ambivalence color the relationships and decisions made between the objects and people involved.

**Figure 2: Outline of a repair intervention**
Table 2: Ambiguity and Ambivalence in the Repair Intervention

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<th>Consumer-Shoe Relationship</th>
<th>Cobbler-Consumer Relationship</th>
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<td><strong>Findings</strong></td>
<td><strong>Examples</strong></td>
<td><strong>Findings</strong></td>
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<td>Internal ailments:</td>
<td>&quot;Even with many years of experience sometimes our cobbler’s can’t immediately determine if a rand needs repair until the sole is removed and they get deeper into the shoe. If you are unsure, it’s best to let the cobbler’s evaluate your shoes and decide what is best for your shoes.&quot; (Rock Climbing Cobbler, Website)</td>
<td>&quot;Timing: uncertainty around when to repair shoes</td>
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<td>difficult diagnose shoe problems at surface level</td>
<td>&quot;Paul was working on Red Wing black leather work boots. He was carefully examining the welt. He said with a plastic welt like this he has to be really careful, because if there are any areas where it’s thin or where there are gaps, the sewing machine will puncture right through and wreck the welt.&quot; (Field notes, cobbler shop)</td>
<td>&quot;Possibility: uncertainty about whether a pair of shoes can be repaired and what the repair entails</td>
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<td>Outcome uncertainty:</td>
<td>&quot;Dude or who ever cleaned my suede shoes destroyed them. All he can say was that’s how suede comes out. It’s unpredictable.&quot; (Yelp)</td>
<td>&quot;Methods: uncertainty about where and how to repair shoes</td>
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<td>cannot perfectly predict the way materials will react to repair techniques and substances</td>
<td>&quot;A lot of people are like, ‘I’ll just buy the caps. I don’t need you to do it. I’ll do it at home.’ It’s just, ‘Oh okay.’ But then it’s dumb. It’s a dumb way to fix your shoe. It’s not fixing it. It’s just putting a really terrible band aid, that’s just going to crumble anyway. Get them re-heeled.&quot; (Lilliana, cobbler, 20s, interview)</td>
<td>&quot;Communication barriers: difficulty translating consumer wishes into cobbler competencies</td>
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<td>&quot;I asked if some people argue and try to get them to work on boots that they say can’t be repaired and they both laughed and said, ‘All the time.’ People will sometimes even get angry at them. Paul said, ‘What they’ll do is they’ll leave a one star or a terrible review on Yelp because we can’t fix their garbage shoes.’” (Field notes, cobbler shop)</td>
<td>&quot;I asked [the cobbler] why he did what he did. He said that’s what I told him to do. I told him regardless of what I said--because I don’t speak &quot;shoe repair&quot;--I showed him a picture (worth a thousand words). He continued to raise his voice, talk over me and yell.&quot; (Yelp)</td>
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<td>&quot;Sending them in sooner without having the rand destroyed is actually cheaper and it extends the life of your shoes. Just looking purely at the shoe and when you should send it in, it’s just like it’s hard to judge when to send them in because you’re like, ‘Wait, can I climb this two more weekends before having to send it in, or would you just send them in now?’” (Robert, rock climbing consumer, 20s, interview)</td>
<td>&quot;Consumer trust: how capable is the cobbler?</td>
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<td>&quot;I had this expectation that it was going to work out the same as my grandmother’s [cobbler] and it did not. It was hot glued back together and it looked terrible. I was like, ‘I could have done just as good a job.’… One was a miracle worker, one was a total bust.” (Janet, consumer, 30s, interview)</td>
<td>&quot;Cobbler trust: how troublesome is this customer? (payments, complaints, etc.)</td>
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<td>&quot;Even if [customers] come in here and then they say crappy work and stuff like that, it all depends what you got to work on. And they are particular on it. The thing is when they come in and they say ‘I’m fussy, and I’m real fussy. You going to do a good job?’ ‘No, take it someplace else. I can’t do it.’ I’m not going to beat my brains up against the wall for five or ten dollars to do it perfect.” (Anthony, cobbler, 80s, interview)</td>
<td>&quot;Communication barriers: difficulty translating consumer wishes into cobbler competencies</td>
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<th>Ambivalence</th>
<th>Pragmatism versus craftsmanship: Weighing desire to save shoe against need to conserve effort and costs</th>
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<td>“Anna was working on sorting through the day’s received shipments and brought a pair of boots back to show to Stan and ask him his advice. The toe cap was worn and the leather underneath it was shredded and would have to be patched and replaced. The sole had almost completely fallen off, but the plastic internal plate was still in place. Anna was on the fence about whether or not it could be repaired. Paul said just to email the customer and tell him that it couldn’t be repaired, but Joe said, “No, no. It can be repaired. We can do it.” They would have to email and tell the customer that it would be an extra 30 dollars to add toe reinforcements in addition to resoling it.” (Field notes, shoe repair shop)</td>
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<td>“I hate waste. I’ll repair boots until there’s nothing left. The problem is that the manufacturers are turning out crap that can’t be repaired. And they’re just spitting it out.” (Cobbler, 60s, field notes)</td>
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| Economic versus singular value: Deciding whether a shoe is “worth” repairing forces an uncomfortable decision between an object simultaneously commoditized and singularized. |
| “I took them and I thought I want these resoled. He said, ”To take it off and put the rubber back, even the cheapest type of bottom on it would extend them for another 3 or 4 years,” he said. It was going to be 80 bucks, and these are, you can see, Cabin Creek by Penney’s. I checked with them. They don’t have this color. That’s why I wanted these done because I cannot find this color again. The lady said you could buy those for 30 bucks. Of course, that [repair] wouldn’t be a good investment even though the leather’s fine on it... I’m somebody who will probably hold on to these and see another way, maybe another cobbler or somebody that can give me a deal, because sometimes they do have deals that you can buy those cheaper bottoms. They will extend it a couple years.” (Deborah, consumer, 50s, interview) |

| Faith versus doubt: Guaranteed outcomes are impossible, and cues about cobbler trustworthiness often contradict each other |
| “Needed to get my Louboutin heels fixed and was scared to take it any shoe repair. Apparently they are an authorized Birkenstock repair shop, and had great reviews on Yelp, so I decided to give them a try. The guy at the front is very young and super nice. He told me he could fix the heel for $16 and would be done in a week. It’s a family owned business and he says all of his brothers work there too, (I love when family members work together!) Great job, Fast service and trust worthy enough to drop off my expensive heels!” (Yelp) |

| Consumer dreams versus cobbler practicality: |
| “The store is beyond cluttered and disorganized. The counter is covered with random items like shoes, bags, papers, etc. I was truly afraid that my stuff would be lost in the mess. But, then I thought, hey, maybe they’re unorganized but talented! Yeah... nope!” (Yelp) |

| “Oh, we’ve had a couple of those people in. They just refuse to accept that our answer is no. We’re like, ’No, we don’t do this. It’s not fixable.’ They get so sad and then they get a little angry and you’re like, ’It’s not my fault. I’m just telling you the facts. Sorry.’ I’m the one saying, ”Sorry.” Paul is like, ”Go somewhere else. Go to Yelp, I don’t care.” (Lilliana, 20s, cobbler, interview) |
Figure two outlines the processes we uncover within the repair intervention. We find that repair occurs as part of an interdependent relationship between object, service provider, and consumer. The durability and fragility of a shoe’s material essence react to forces external to the object, and the resulting tensions shape a triadic relationship between shoe, cobbler and consumer. Ambiguity about and ambivalence toward the object’s essence arise in this relationship, influencing intervention decisions. These care and repair interventions irreversibly alter the life trajectory of the object. When successful, repair interventions extend a shoe’s life, temporarily resolving the tensions with its durability and fragility. When unsuccessful, the shoe may succumb to external material forces and quickly disintegrate. In either case, the ambiguity and ambivalence inherent in any repair intervention make this outcome “magical” in the sense that consumers—and sometimes even cobblers—cannot fully understand or explain how their shoes arrived in their changed state and altered life trajectory.

Table two summarizes our findings with respect to the repair intervention, exemplified by quotations that supplement those included in the text. The following sections describe in detail how repair plays out within the triadic object-cobbler-consumer relationship.

Interventional ambiguity: cobblers and shoes

Ambiguity is experienced between cobblers and shoes, shoes and consumers, and consumers and cobblers. Although shoe repair service providers understand more than consumers about the internal form and function of footwear, many aspects of a shoe’s material essence are still uncertain even to the most experienced cobblers. Cobblers providing online advice insist that consumers provide photographs and text descriptions of footwear problems, but some still complain that they struggle to diagnose a shoe’s problems based on images and text alone. One cobbler posted in reply to a consumer question, “I’d like to see this in my hands to give a more definitive answer.” Shoe repair professionals learn their trade through practice, gradually embodying the knowledge they will use to repair footwear worn and broken in very individualized ways. Like a surgeon, a cobbler generally needs to look at, touch, and even take apart a pair of shoes in order to know exactly what each repair service will entail. One conversation with Anthony (cobbler, eighties, interview) as he works on a pair of leather sandals chewed up by a consumer’s dog illustrates this ambiguity:

Matt: This “puppy love” job is about fifteen bucks, probably?

Anthony: No, probably [pauses], probably a little more. I don't know there. I'll see how much time it takes to do it, to complete the job.

Matt: So you can't really know how much to charge until the job is done?

Anthony: No, not until you do it. So sometimes when they come in and you take a look you say, “Okay, I figure about twenty, twenty-five dollars.” And if you do it for less, do it for less. But don't get yourself in a hole. That's all.”

Cobblers like Anthony face uncertainty regarding the methods, extent, possibility, and cost of shoe repairs. Because each job is slightly different, quoting standardized prices can hurt a cobbler who has to spend extra time for a shoe that required extra attention. Additionally, the outcome of repair interventions is uncertain. A Yelp reviewer complained about such an outcome, writing, “The shoes are now two toned. One color on the top and the sides were a different color. The shoes were a solid color when I brought them in originally.” A cobbler posting in response to a consumer’s online forum question about dying shoes said, “It is often hard to predict how it will turn out.” Dying and cleaning processes such as these are particularly
unpredictable. Different shoes and materials react to the same interventions in distinct ways, many times in ways that even experienced cobbblers cannot predict.

**Interventional ambiguity: consumers and shoes**

Consumers also face uncertainty with regard to their worn shoes. The timing, possibility, and appropriate methods of repair are all ambiguous. As a general rule, the further a shoe moves toward disintegration the more difficult repair becomes. Cobbler encourage customers to bring shoes in for treatment before they are too far gone, replacing the bottom of a heel, for example, before wearing into the heel’s underlying wood or metal structure. Most consumers, however, are poor judges of how much life is left in their shoes, despite the reality that correctly assessing—and promptly acting on it—is critical for the effective practice of shoe repair.

Rock climbers are particularly sensitive to the timing of repair decisions. Tom has four pairs of shoes in his climbing bag that he uses for different types of climbs. He has sent three pairs by mail to a repair shop specializing in rock climbing shoes. For Tom, having multiple pairs of shoes is necessary for allowing him to practice repair. First, he needs to have other shoes that he likes in case the shoes come back from the cobbler fitting poorly. Second, old climbing shoes will never retain their stiffness forever—once a shoe needs repair it has lost the stiffness needed to be used as a competitive shoe and must instead be used for low-stakes training climbs. Third, having alternative shoes allows Tom to send shoes in early for repair.

He gives some advice to fellow rock climbers:

Be smart about your resoles. And if you're going to do it, make sure that you haven't blown through this part yet [points to the toe box]. Make sure that you don't need a new toe cap. If you do need a new toe cap, then you really run the question of, "Should I get them resoled, or not?" Once this starts to peel [points to the rand over the toe box], that's when I stop climbing on it and decide.

To “stop climbing and decide” means facing the future of a shoe’s life directly. However, as described earlier in our findings, many climbers continue using their shoes past the point of repair. One rock climbing shoe repair shop estimates that 75% of the thousands of shoes they repair annually need rand replacement because their owners waited too long to send the shoes in, resulting in a costlier and more time consuming process than simply replacing a sole.

Our consumer informants also faced uncertainty regarding the possibility of repair for their worn shoes. With many contemporary footwear styles constructed from low quality materials or using unusual techniques, cobbler have to turn away many customers and their shoes. Several shop repair shops rejected one Yelp reviewer’s “brand new designer boots” in need of a zipper repair. However, the reviewer wrote, “I didn't give up; through the power of Google and countless phone calls, I located [another shoe repair shop] and never looked back. Amir took my boot, grabbed his tools and fixed the problem in 5mins.” Differences in cobbler’s abilities and perceptions of shoes add to the ambiguity consumers face in their shoe repair decisions.

The methods appropriate for repair are also ambiguous to consumers. DIY repair is an important part of consumer repair practices. Bloggers and online forum participants share DIY ideas with each other—from installing ready-to-use heel caps to using old automobile tires to resole imitation Adidas sandals. Approximately half of the consumers posting on one cobbler advice forum seek instructions on how to fix footwear by themselves at home. One consumer posted, “Today I put a huge scuff in [my boots] while tripping up some concrete stairs running for the bus. I don't need them to look like new, but I'd like them to look a little better if I can do it myself.” Although the self-proclaimed professional cobbler providing recommendations often advise these consumers to seek out a local cobbler for professional repair service,
they frequently provide detailed instructions for simple at-home fixes such as shoe cream for scuffs and even more complex jobs such as fully stitched resoles.

DIY repairs also have a dark side. Sarah (female, 20s, field notes) purchased a DIY repair kit for her rock climbing shoes. She said that the shoe, unfortunately, fit and performed poorly afterward. Lilliana (cobbler, 20s, interview) describes her feelings about DIY heel repairs as compared to professional work:

A lot of people are like, “I'll just buy the caps. I don't need you to do it. I'll do it at home.” It's just, “Oh okay.” But then it's dumb. It's a dumb way to fix your shoe. It's not fixing it. It's just putting on a really terrible Band-Aid that's just going to crumble anyway. Get them re-heeled. Sometimes people do that [themselves] because they're all, “I just need them for the weekend.” It's like, “All right. That's justifiable, but get your shoes properly re-heeled and then you will have them and they'll be pretty.”

While DIY repair provides a fast and economical method of extending a shoe’s life, home repairs are often ineffective. However, due to the ambiguity of shoes’ integrity and future life trajectory, consumers may choose less beneficial methods of repair that end up hurting the longevity of their footwear.

Interventional ambiguity: cobblers and consumers

Cobblers and consumers also enter into an ambiguous interpersonal relationship. First, consumers do not know whether to trust a shoe repairperson with their footwear. Yelp reviewers report shoes being ruined by cobblers who had received overwhelmingly positive online reviews from prior customers, indicating the challenge of measuring and predicting repair outcomes. The embodiment of their knowledge means that cobblers often cannot explain exactly what they do or what a particular shoe needs. This forces consumers to relinquish more control than is conventional in contemporary buyer-seller relationships. It is common for cobblers to simply ask customers to trust them and their abilities. “Don't worry,” Anthony recounted his words to a nervous customer, “Just leave the shoe and I'll do it.” Adding to many consumers’ anxiety about the ambiguity of the exchange, cobblers commonly request pre-payment in cash for their work.

Ambiguity between consumers and cobblers is nearly unavoidable considering the cluttered state of almost every shoe repair shop we visited. Our field notes after one shop visit we noted, “First impression when I walked into the shop was the clutter. I know that most cobbler shops that I've been to have been very cluttered, but for some reason I expected this shop to be a little bit more ordered and a little bit newer, with trendier décor being in [a neighbourhood] where a lot of restaurants and shops and boutiques are a little bit more fashionable.” Through Yelp reviewers and our own observations in multiple shops, we frequently witnessed lost and misplaced shoes, receipts, materials, and instructions.

Consumers can also be unsure of how to judge shoe repair results. A puzzled consumer on a shoe repair forum found metal tacks installed under the toe of a pair of resoled shoes and asked, “Can anyone tell me if this is an ‘acceptable’ practice, or whether someone has essentially ruined the shoe by doing this?” The line between “acceptable” and “ruined” is particularly fuzzy in shoe repair service exchanges where the shoe is still wearable but its aesthetics or fit have been compromised.

Uncertainty runs both ways. Cobblers make it clear to us that, in the case of shoe repair, the customer is not always right. Clashes of customer service expectations can lead to frequent and heated disagreements between cobblers and consumers. Anthony complained, “Customers used to have a lot of respect for you. Now they expect you to bend over backwards or they’ll go somewhere else.” Sometimes he tells “real fussy” customers to take their business elsewhere.
Paul (60s), a hiking boot cobbler for over forty years, said that customers argue with him and his employees about whether their boots are repairable “all the time.” He said, “What they'll do is they'll leave a one star or a terrible review on Yelp because we can't fix their garbage shoes.” Our Yelp review analysis confirmed Paul's comment over and over again. One consumer reviewer called a highly-rated shop’s reputation “dubious” after the cobbler reportedly told him multiple times that he did not want to attempt repairing the consumer’s low-quality, molded-construction dress shoes. Cobbler's do not always know which of their customers will cause them trouble, however. Additionally, in cases where full payment for repair is not made until customers pick up their shoes, cobblers are also uncertain whether they will get paid for completed work. One field note excerpt illustrates:

When I asked how much the deposit was, Rob said, “Whatever you want.” I gave him $10. He didn’t put it in a cash register, but just left it on the counter. I filled out a simple cardstock tag with my name and phone number, and Rob detached part of the receipt and said he'd call me when they were ready. Sometimes he can finish them in a day, but because he’s so busy he said it would probably take about a week.

Rob seems to embrace an ambiguous yet trusting relationship with his customers, both in terms of his repair services—how long the process may take—and his remuneration. We find that the multidirectional ambiguity in the cobbler-consumer-object relationship leads to ambivalent feelings and experiences for all involved. We outline this ambivalence and its impacts in the next sections.

Interventional ambivalence: cobblers and shoes

Cobblers gain a sense of satisfaction in fixing things. They make comments like “I like to fix stuff” and “I like to bring things back from the dead.” Similarly, Clint (cobbler, 60s, field notes) said, “I hate waste. I’ll repair boots until there’s nothing left. The problem is that the manufacturers are turning out crap that can’t be repaired. And they're just spitting it out.” Cobblers can take great pride in their training and abilities, as illustrated by the following field notes excerpt:

Trevor said the reason for such loyal customers is that he does a superior repair job. He showed me a couple pairs of boots as an example. One pair of extremely worn black cowboy boots had two holes in the upper and a hole right through the sole. He showed me where he had carefully patched the upper with matching leather and completely redid the sole. On another pair of boots, he showed me an example of how his craft differs from other cobblers. “You know that ridge that you get along here after some repair jobs?” He ran his finger along the boot’s sole below the arch of the foot. “I don’t do that. I do things a bit differently in here.”

Deploying embodied knowledge to solve unique footwear problems, cobblers like Trevor experience a sense of satisfaction in the work of repair. However, as Clint’s quotation illustrates, the material circumstances of the shoes available to work on also create powerful negative emotions. The repair intervention is filled with ambivalence between cobblers and shoes. For cobblers, repair involves a battle between pragmatism and craftsmanship. Sometimes cobblers attempt to repair the unrepairable. Other times they give up. In either case, the decision about whether and how to repair such shoes casts a cloud of ambivalence over the shoe repair shop.

Interventional ambivalence: consumers and shoes

For our consumer informants, ambivalent feelings toward shoes arise from internal debates over whether to prioritize economic or alternative values. Dick (retail store owner, 60s, field notes) says that after years of arguments with customers he learned not to try and dissuade anyone from getting something repaired. He tells them the pros and cons, including the cost of repair versus a new boot, and then he lets
them make the choice. Dick tells the story of a woman whose mother had bought her an expensive pair of western boots. Years later, the woman got a new dog who ate right through the toe of one of the boots—tearing out the entire toe. Dick sent them to a cobbler who repaired the ruined boot with new leather and did the opposite one to match. The repair cost more than the boots cost new, but the woman was overjoyed to pay it and get her boots back because her mother had bought them for her, and they were “precious” to her.

When shoes are simply exchangeable commodities, then simple economic calculations make repair a straightforward decision for consumers. However, when shoes have singular value through meaning or relationships—like the woman’s boots above—or simply through their physical form—like Janet’s “favorite shoes that you’ll never give up on” quoted earlier in our findings—economic balances seem inappropriate. Robert described his rock climbing shoes in the same way: “These are my babies. They are going in and these are the only shoes that fit, and they’re expensive too. At least for a college student.” With economic, symbolic, and physical valuations contained within a single object, Robert feels nervous—despite his hope for repair—about mailing his shoes away to a faraway rock climbing shoe cobbler.

Other customers feel similar ambivalent experiences of hope-versus-risk. An online forum participant, after being told by several others that his moldy work boots should be tossed in the trash, insisted that he would find a way to fix them. “Even if I do end up throwing them away” the poster said, “at least I can say I tried.”

Interventional ambivalence: cobblers and consumers

These strong ambivalent feelings toward shoes and boots clash again between cobblers and consumers. Dealing with object life and death, stakes are very high when shoe repair people work on singular shoes. These stakes are all the more striking in a profession where consumers can view a $50 repair—even on a pair of $1,200 heels—as “expensive.”

Despite low economic remuneration for their work—we frequently encountered cobblers spending more than an hour on jobs for which they charged $20 or less—consumers expect miracles from their cobbler’s hands. With such high hopes alongside such high stakes, consumers struggle between doubt and faith in their cobbler. One Yelp reviewer wrote, “I was bit nervous to drop off the shoes, for the shop to tell me how horrendous the condition of boots were in, but they didn't blink an eye and made sure it would look like new and told me how they would replace the fabric around the heel to leather.” In this case the consumer’s faith was rewarded. In other cases doubt would have been more appropriate. Another Yelp reviewer wrote, “I wanted to support a small business but ended up having my $165 shoes destroyed.” Many Yelp reviewers wrote that they loved the idea of supporting small, locally owned businesses like shoe repair shops. However, these feelings may clashed with the outcomes of their repair work. Consumers feel cheated after placing trust in a business that ruined a pair of shoes. Arguments between consumers and cobblers frequently break out before and after repair interventions, illustrating the tension created by conflicting emotions within and between these people’s minds.

Cobbler also experience ambivalent feelings toward consumers. Anthony said, “Once in a while I'll get some that are molded [construction style] and stuff like that, and we find a way to fix some... some of them can’t [be repaired], but if you tell them that you're not going to have any business.” Anthony turns some customers away because he said, “I’m not going to beat my brains out” to do a perfect job from a high-maintenance customer. But even though he would prefer more empathetic customers with higher quality shoes he feels compelled to repair low quality shoes for many customers simply to keep his business alive. Customers are a source of income but also stress for cobbler.
Magical transformation

Fragility and durability generate ambiguity and ambivalence, which in turn guide decisions about where, when, how, and why to repair shoes and boots. During repair, physically singular shoes with opaque material essences are altered in the hands of cobbler deploying deeply embodied knowledge. Regardless of the result, the outcome of a repair intervention under these conditions is always a magical transformation. The uncertainty and ambiguity inherent in such a service exchange leads to two types of outcomes: when successful, this singular service feels miraculous and beautiful to consumers, generating strong feelings of respect and loyalty toward the service provider. When unsuccessful, the service seems flawed and fraudulent, triggering anger and frustration toward the repair professional. Both experiences are “magical” in the sense that they arise from seemingly mysterious sources and are often inexplicable in the eyes of the consumer—and occasionally even the cobbler, as we explain earlier.

The skills required of an effective shoe repair professional must be gained through hands-on experience. Well-regarded cobblers generally had to pass through many years of informal apprenticeship with experienced craftspeople. No formal training programs are available in the United States. Barbara (female, 30s, fieldwork) explained how, through a chain of fortuitous events, “the hand of God” led her into the shoe repair industry and enabled her to repair her life. She said that she spent five years learning the trade from a World War II veteran who did shoe repairs “the old way.” Working “with my hands” is an important part of many cobblers’ identities. Many are adept at fixing not only shoes, but also automobiles, clocks, and the vintage sewing and finishing machines they relied on in their work.

The following field notes excerpt from a particularly busy repair shop illustrates the unconscious, embodied workflow of an experienced cobbler:

There were five people working in the back, each working on different portions of the repair process. They all managed to stay out of each other’s way, but I noticed that when I was in the back it seemed to throw them off a little bit. They would almost walk into me because they would walk from one station—a sander, maybe—to another station without even watching where they were going, because the process had become so automated. At the same time… each shoe had specific needs, so each shoe had to be customized. The embodied knowledge that Joe, and even the other [less experienced] employees, had was really impressive. I have no idea how he could train somebody. When I asked him questions, it took quite a bit [of time and explaining] for me to actually get to the point where I thought I understood what he was talking about and what he was doing, because—the way he talked about it and the terms he used and the things that he did—he knew exactly what he was doing in his head, and he had a process set out. He knew where every shoe was in the shop and seemed to know at exactly what stage it was in the repair process. But he didn't write anything down. He didn't record anything that he was doing. He just moved through the shop putting shoes in new places, doing a small portion of a job to one and then moving on to something else.

Joe’s knowledge is deeply embodied. Although several other cobblers worked in the same shop, there were still tasks that only Joe could complete. Passing this knowledge on to a new generation of shoe repair workers presents a challenge. Some shoe repair shops hired and attempted to train unskilled laborers, starting them on simple tasks like pulling off old soles and preparing shoes for adhesives. Most of these new employees, however, left the shop after less than a year, before learning how to do more difficult tasks. “It takes years,” one climbing shoe cobbler said, to master the art of shoe repair.

The cobbler, with his or her mysterious and embodied healing knowledge is essentially a kind of magician or prophet. Given this mystical, religious imagery it seems fitting that, like the false prophets in
the Bible who were said to be indistinguishable from genuine articles at face value, consumers may know their cobbler only by their fruits. Consumers try out their cobbler to discern shoe repair talents. After one Yelp reviewer reported that such a test revealed a true cobbler, they said, “I have a bunch of old shoes/boots that I thought were beyond repair. I now plan to bring them all in for new life!”

As many of previous quotations have exemplified, consumers who find a master cobbler revere the service provider as someone holding magical powers. One Yelp reviewer wrote, “I have seen the work he has done on shoes, and on luggage. I suspect the result is part hard work and part black magic.” This comment exemplifies the awe that comes from the mysterious shoe repair craft. A cobbler’s hard work and embodied knowledge act on the ambiguously integrated shoe, leading to a miraculous transformation. The following excerpt from a Yelp review describes another cobbler miracle worker:

We have been going here for years—Manuel is a master at his craft! He can fix ANYTHING! My daughter buys things (shoes and bags, luggage) at [a luxury clearance store] and wears them out completely. He weaves his magic and they are new again—each and every time! He does an extraordinary job and he is a lovely man besides.

On the flip side, however, many cobbler have ruined or destroyed their customer’s boots and shoes. The opaque nature of embodied knowledge makes discerning between good and bad cobbler and even repair outcomes very difficult. In Yelp reviews, the same shoe repair professional who is called “the magical cobbler who can do wonders with shoes” by one customer, merits a stern warning by another against his “up-selling and faulty workmanship.”

Janet describes two cobbler she tried as, “One was a miracle worker, one was a total bust.” She adds, “What was so unfortunate is to the second guy I took this huge brown paper bag full of shoes. It was like two hundred dollars worth of shoe repairs. None of them worked. I was so disappointed with all of them. I was so discouraged.”

Kopytoff (1986) notes that “the medicine man makes and sells a medicine that is utterly singular since it is efficacious only for the intended person” (75). As with healers of human bodies, the life-extending remedies offered by cobbler cannot be exchanged for anything other than the singular shoes that they service in each individual exchange. Although some attempts at standardization exist in every shoe repair shop (e.g., pre-made soles, assembly-line-style work flows), the singular nature of footwear makes uniform treatment impossible. When these singular shoes encounter the singular, embodied knowledge of the cobbler, a highly customized intervention occurs. Magic can happen, but so can mistakes and miscalculations. This is the nature of the singular service exchange of shoe repair.

**DISCUSSION**

We set out on a theoretical journey to bring objects’ material essence back into conceptualizations of consumer practice. We demonstrate empirically Harman’s (2016) claim that objects have an ambiguous essence, autonomous from their relationships with and effects upon human actors. Our findings show that the power of this autonomous essence—the thing in itself—arises from tensions between the object’s internal durability and fragility. External forces act upon the object, which reacts in surprising ways that influence its future life trajectory.

Consumers attempt to resolve uncomfortable tensions between the fragility and durability of material objects by intervening in objects’ life trajectories. Through repair and similar interventions, consumers create the “symbiotic” conditions (Harman 2016) whereby the material essence of an object, such as a shoe or boot, is reversibly altered. Decisions about how, when, why, how, and whether to intervene arise out of a triadic relationship between consumer, object, and intervention service provider—
a relationship shaped by ambiguity and ambivalence toward the object and other actors. When successful, the result seems magical in its wonderful yet mysterious outcome. When unsuccessful, the outcome seems wicked and fraudulent in equally enigmatic ways.

Object-oriented ontology in consumer research

Our focus and contribution differs from prior work in that we foreground the object and its materiality against the backdrop of its symbolic meaning and relational effects. We show that an object’s materiality shapes meaning and relationships in often-unpredictable ways because each object exists independently of its interactions with human beings and other objects. Things have a built-in, latent potential to surprise (Pierides and Woodman 2012; Harman 2016).

This object-oriented ontological approach is important for consumer research for two reasons. First, object-oriented ontology reframes conceptualizations of stages of consumer use and disposition of objects. While the complexities inherent in moving objects from one stage to another have been studied in some exceptional cases, such as hoarders (Maycroft 2009) and trash gleaners (Guillard and Roux 2014), ambiguity and ambivalence toward objects also colors the lives of seemingly mundane objects used by fairly mainstream consumers. Future research could take these discussions even further by studying the life of objects even after the disintegration of their material essence. Elements of a disintegrated object will continue to exist and act even when it is no longer recognizable as a shoe or anything else. Reintegration and the formation of a new autonomous essence remains a fruitful avenue for additional study.

Second, we also illustrate the importance of life-altering circumstances of symbiosis, in which objects are changed permanently. Object-oriented ontology pushes us to seek out these moments of irreparable change and better understand how consumers deal with the ambiguous perceptions and ambivalent feelings inherent in these moments of uncertainty. Fragility and durability act as the enabling mechanisms for symbiotic change, illustrating how the integrity of different objects’ material essences can vary and lead to divergent life trajectories.

Repair and the singular service exchange

The singularly unique yet opaque nature of every object—with the ambiguities and ambivalences inherent in relationships with these objects—requires a uniquely tailored intervention for each shoe. In this way the repair service exchange more closely resembles a physician-patient relationship than a conventional seller-customer transaction. Although a patient or a shoe might have an ailment common to many others that a service professional has helped in the past, the unique circumstances of the patient or shoe’s life necessitate tailoring each service individually. This may require learning and adapting even during the process of the service provision itself, as new information becomes salient and relevant while repair unfolds. One senior surgical resident writes:

“Every day, surgeons are faced with uncertainties. Information is inadequate; the science is ambiguous; one’s knowledge and abilities are never perfect… Standing at the table my first time, I wondered how the surgeon knew that he would do this patient good, that all the steps would go as planned, that bleeding would be controlled and infection would not take hold and organs would not be injured. He didn’t, of course. But he still cut.” (Gawande 2002, 15–16)

Recognizing that even experienced medical professionals are still “practicing” their craft on living human bodies may seem somewhat disconcerting. But opaque nature of material life necessitates it. Shoe repair service is a “practice” that takes a lifetime of embodied knowledge gained through interactions between cobbler, shoes and consumers. But this uncomfortable ambiguity is also precisely what allows for miraculous and magical healing outcomes to emerge.
These insights force us to push service marketing literature beyond dyadic relationships involving people exchanging intangible value, toward a more material perspective. Many exchanges in the service sector revolve around focal objects. Retail stores and restaurants, for example, utilize objects such as clothing or food act as a medium of service exchange. We argue that these products are by no means passive media. The opaque and autonomous nature of an object’s essence, even in the most standardized of products, can lead to surprising and unexpected service outcomes.

These surprises come as a result of the triadic relationship between object, consumer, and service provider. An object-oriented conceptualization of service problematizes the pursuit of customer satisfaction as the key ingredient of successful service encounters. In shoe repair, a successful exchange involves positive, magical experiences that may diverge drastically from customers’ prior expectations. Although such service magic seems risky—materials may react unpredictably to repair interventions, for example—it offers the possibility of generating strong connections between consumer and service provider through their shared interdependency on an autonomous material object. The influence of the object is particularly salient in repair service exchanges, which may involve anything from a home or mobile phone, to a car or a human body. Future marketing and consumer research should further examine uncertain role of materiality in service exchanges.
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TECHNOCRAFT: THE ARTWORLDS OF CONSUMER CULTURE

Brandon McAlexander, University of Arkansas

ABSTRACT

This study attempts to understand how art emanates from a subculture of consumption by exploring the context of consumers building their own computers and modifying their cases. Data was gathered using participant-observation and in-depth interviewing. As art is a difficult concept to define, this article draws on social theory from both Danto and Bourdieu to help understand this phenomenon. Both argue that art cannot be defined directly, but is defined by the institutions that surround it, called the Artworld. In this article, it is argued that many smaller artworlds exist independent of the over-arching “Artworld” provided similar institutions exist in that subculture. The article then describes the analogous artworld institutions that exist within the chosen subculture to demonstrate the existence of a subculture-level artworld. Using this information helps managers understand how to create and sustain a marketplace that encourages creative consumers to develop products that the subculture itself considers art.

INTRODUCTION

With their Service Dominant Logic, Vargo and Lusch (2004) determined that all firms should consider themselves service based firms. One of the core tenants of Service Dominant Logic is that firms should be focusing on the co-creation of value with their consumers. Following this logic, many organizations have expanded into offering customization to their customers. This is supported by the IKEA effect (Norton, 2011), where consumers expressed increased valuation of products that the consumer helped to make.

This research is concerned with understanding a deeper conception of customization. While many consumers may be happy with their new customization options, there are some marketplaces where self-expression and co-creation have been taken to an extreme. Historically speaking, the motorcycle consumer culture has had chopper culture (Schouten and McAlexander, 1995), and cars have had hot rod culture to prop up an even larger conception of co-creation of value. Even something as simple as cooking has an entire artistic discipline that follows a basic consumption context. These consumption contexts have created an artistic realm with which the consumers become engaged on a new level. This research seeks to understand how this art emanates from these consumption contexts.

CONTEXT

To understand this phenomenon more clearly, I focused on the consumer group building their own personal computers (PCs). The PC marketplace is one that is generally considered ever-growing, and the “build-a-pc” marketplace is no exception. While there is no hard data on how many home-built PCs there are in the marketplace, the substantial growth of websites such as “pcpartpicker.com” and “tomshardware.com”, and the major success of newegg.com can be attributed, in part, to this movement.

Additionally, the website Reddit, a social news aggregator, keeps track of the size of their “subreddits”. These “subreddits” are individual social news boards which follow a specific topic. While not the best measure, the subreddit “buildapc” is currently ranked 104th in subscriptions. While that may not sound impressive on its surface, reddit has over one million subreddits, and “buildapc” is currently ahead of others such as “anime”, “Minecraft”, “wow” (the World of Warcraft subreddit), and “cats”. As of writing, it has a little more than 420,000 subscribers. By no means is this a completely accurate indicator of the number of consumers actually engaged in this practice, but it sheds some light on the popularity of the movement.
These consumers pick parts and design PCs to their needs. They pick parts based on computing power, costs, and how well each part interact with one another. The PC building marketplace has created a social network in which people converse about the metrics of new parts, the efficiency of a build, and troubleshooting problems that arise as they build their computers. The difficulty of the process isn’t particularly high, but given the expense of the parts and the complications that can arise, many are intimidated by the process. These consumers tend to be gamers, coders, graphic designers, and video editors that need higher powered computers for their respective activities. These PC builders are drawn in by lower prices, higher degree of control over their build, and the general appeal of building something yourself.

Within this context, there is a small group of people engaging in something called “case modifying” (or case modding). These consumers go beyond just designing the guts of their computer, but build something more artistic. Cases have been designed to look like objects from video games, cars, and other culturally relevant objects. Not all cases have been modified to “imitate life”, as some cases are designed to look technically impressive, with water cooling tubes, and other LED’s that make the design look very impressive and “futuristic”. In a sense, these computers are the hot rods of computer culture. This led me to question how these artistic endeavors come to pass. In examining this context, I seek to answer the following questions: How does art emanate from a consumption context? How can we conceptualize these movements? What institutions support this art?

THEORY

Art is something that is historically difficult to define. Every attempt to define it simply leads to an artist subverting that definition with a hearty grin. Some attempts at defining art have suggested that art is simply imitation and mimesis. Arthur Danto (1964) suggested that the imitation theory of art is insufficient for art to exist, as then a mirror would be classified as art. The imitation theory was more heavily questioned after the advent of photography and its subsequent inclusion in the canon of art as well. Additionally, any “art-for-arts-sake” argument tends to get shut down, as architecture and other interactive exhibits provide function and use value. The argument can also be perceived as tautological.

What Danto suggests is that defining art as a class of objects is impossible. To see art requires something beyond just the empirical senses. Instead, art is viewed using the knowledge of art history and an atmosphere of artistic theory. He conceptualizes this as the “Artworld”, which was the first steps toward developing an institutional theory of art. He suggests that the Artworld provides what instrumentally could be described as “acrylic paint on canvas” with value beyond its instrumentation – art value. This value is created within the eye and mind of the observer who can identify a piece of art within the canon of art, as historically and theoretically grounded. The establishment of that theory and that historicity is a result of art institutions and museums that have supreme power in determining what art is. This is continually socially negotiated within the Artworld, with the final say of what constitutes art being squarely on the lap of those major institutions.

Pierre Bourdieu latched on to this idea of the Artworld, and suggested ways in which cultural and social capitals can be expressed (1986). He argues that art schools, museums, and critics all constitute this continuous cultural reproduction that we consider the Artworld (1987). Much like Danto, Bourdieu suggests that the museum is both consecrated and consecrating. Art is endowed with meaning based on a cultured habitus within the artistic field. Following his practice theory, the Artworld is defined as a field of art, and in order to be culturally versed enough to determine what objects belong in the artworld, one must have developed a habitus well oriented to that field, as well as the necessary cultural and social capitals either through education or through practice, to establish one’s self as an authority on art. Thus, these institutions determine what art is, and what art is not, within the culturally established field of art, or the Artworld.

Bourdieu lists several actors that constitutes the artworld: connoisseurs, museums, curators, artists/creators, critics, historians, art analysts, techniques, etc. He categorizes them as places of exhibit
(galleries, museums), institutions of consecration or sanction (academies, salons), instances of reproduction of producers and consumers (art schools, etc.), and specialized agents (dealers, critics, art historians, collectors, etc.). Each one of these agents are endowed with the appropriate habitus to help shape the Artworld.

Another element that Bourdieu emphasizes as important to the Artworld is the elaboration of an artistic language. He claims that the way of naming the artist, of speaking about her/him, about the nature of her/his work establishes a definition of artistic value that is independent of any use value. By the same logic, the biography of the work is of equal importance, playing a determining role in the artistic value of the object. The biography of the work creates a value that wasn’t there before, and makes both the artist and the work worthy of historical account.

Not satisfied with this conception of one monolithic Artworld, Howard Becker suggests that there are many artworlds, which are distinguished by disparate cultures. For example, the Artworld that Bourdieu and Danto largely reference is very westernized. The cultural hubs are located in Paris, Los Angeles, and New York. Despite this western canon of art, there are many, many other cultures of art that would not find their way in the museums at these locations. China and Brazil, just as two examples, have distinctly different art cultures than does the western canon. Ultimately these artworlds are distinct, and culturally unique. Additionally, Becker claims that these artworlds can be stable or ephemeral.

Given that we can conceptualize consumer markets as subcultures (Schouten and McAlexander, 1995), I aim to demonstrate that we can find artworlds inside of a consumer culture, and by extension can demonstrate how these art movements can self-sustain.

METHODS

My methods followed from the tradition of multi-sited ethnography (Falzon, 2016; Kjeldgaard, Csaba, & Ger, 2006), in which complex phenomena are explored in and across connected social worlds. From April 2014 through March 2017, I collected and analyzed data gathered from several internet sites, QuakeCon, and from interviews done via a VOIP program (Kozinets, 2014; Falzon, 2016). QuakeCon is a convention that takes place annually in Dallas, which has a case mod competition, as well as one of the largest “LAN Parties” (where gamers link their computers to play together) in the world. The majority, if not all, of the computers brought to QuakeCon are consumer built. Image 1 is a picture I took that gives some sense of scope for how large the LAN is. The picture was taken at roughly the midpoint of the convention center. There are thousands of players that attend the convention each year.

While at QuakeCon I spent time wandering around the convention, speaking with people who weren’t hyper-focused on the games they were playing. Additionally, I made note of locations of case modifications and made special efforts to check back, and talk with individuals who had modded a case. After speaking with a few case modders, I asked if they had any friends that had also modded their case, and thus followed a snowball sample. These interviews were informal, but most of them were recorded and transcribed.

Many of my informants are from Texas and Oklahoma, as many of the informants I spoke with lived near the convention. Additionally, I spent much time on the subreddit for building a computer, and regularly browsed the internet to see case modifications and the reactions that were generated from their viewers. Lastly, while I have built my own computer in the past, in February 2017, I built an entirely new computer to make sure I was up to date on my processual knowledge, terminology, and technical competence. My data collection work is summarized in Table 1. My data set consists of transcripts, field notes, and photos taken on site. These data are supplemented with pamphlets, promotional materials, and
magazines collected at QuakeCon. Data collection and analysis have occurred iteratively and simultaneously throughout this study.

Given that my research questions focus on establishing the existence of an artworld in a consumer culture, understanding the art institutions that surround the marketplace and the ways in which the artists feel supported by those institutions was paramount to my investigation. Thus, I began my analysis by focusing on the interviews with informants that had modded a case, and identifying actors that could constitute the institutions as described by Bourdieu, Danto, and Becker. I then identified other ways in which the informants could be described as artists. Next, I focused on interviews with informants that did not engage in case modding, but were generally aware of the practice, to see what they had to say as patrons and critics of this art.

**FINDINGS**

To demonstrate the existence of an artworld within the context of PC building, I focused on the elements that Bourdieu, Danto, and Becker identify as integral to the artworld. Becker defined the complete roster of the social world of art as individuals who: conceive of the idea (composers/playwrights), execute the idea (actors/musicians), provide the equipment for the creation (instrument makers), and consist an audience (playgoers, critics). Danto and Bourdieu also heavily emphasize the consecrating and replicating effects of museums and art institutions, which need to be included in the conception of an artworld as well. Per these institutional theories of art, art is a social and institutional process that relies on all of these agents for an artworld to exist and self-replicate. If these actors can be identified within a cultural context, according to Becker, then an artworld is established. One thing to note – in many cases, those who conceive of the idea are also those who execute the idea (the artist). In the case of building a computer, those two entities are very frequently the same, and I will just refer to them as the artist. Thus, I search for artists, material merchants, institutions, and audiences.

**Artists**

One thing that clearly needs establishing here is that the computers themselves are considered art, and not just the cases. In this way, it’s not creating art, and then placing a computer in it. It’s a matter of the computer-as-art.

*Eric:* ...it is a case mod competition. It’s not a sculpture competition.

Here, Eric makes it very clear that he is building a computer first, not just a sculpture with a computer in it. This clearly delineates this context from a well-established artistic context like sculpture, or painting. Figuring out how to make a functioning PC out of these creative and sometimes bizarre designs is paramount to the context.

*Eric:* I wanted at least it to be very obvious to any viewer that it is my computer, rather than this Eyebot where it could just be a model...

These artists are very adamant that they are not creating sculptures and just placing computer parts in them. The computer is part of the artistic object. This is particularly evident in cases that are designed to look like futuristic computers. An example of a “futuristic” computer is found in the Appendix under image 2. The clean interior, the colorful lighting, and the tubing scheme make this computer very unique. The computer is not made to look like something else, or take the form of another object, it simply is a computer, designed as a piece of art.

The existence of artists is quite clear from my research. Simply by virtue of case mods being classified as their own category of computer design is evidence to that fact. These artists are creating
something by hand that has an expressive value to themselves, and to their audiences. There are even questions of legitimacy.

_Eric:_ I don’t see how you could take pride in it. It’s just look what these companies did for me.

Eric had a substantial amount of pride in his hand built PC that he painted and crafted himself. He took great exception to people that sent their computers off to a company to have the case painted for them.

_Eric:_ ...all together that looks great, but it’s not a throw money at your computer contest, or it shouldn’t be.

He clearly felt that the process needed to be far more personal than designing something then sending it off to someone else to let them take care of the construction. The author needed to be the creator as well. Additionally, this text lends credence to Bourdieu’s conception that the biography of the product helps to create artistic value.

Many of these case modders also engage in a practice of “logging the build”. Many of these artists will take photos of the process of building their PC and share it with the rest of the community on a blog, or other community website. These aren’t just work in progress logs either. In many cases, the difficulties and challenges that these artists run into are explained in depth, which helps give the computer more artistic value. One of my informants, Michael, is heavily into 3d printing, and 3d printed a device from a video game as the case for his computer. He created a build log that he shared on his website.

_Michael:_ ...I then had to figure out the scale of the model so that it will fit the dimensions of the computer components.

Here he explains one of the challenges that he faced while building his PC. Rather than just showing things as they were happening, he was creating the story of what happened, where he made mistakes, and describes each painstaking step to build his PC. These stories, pictures, and challenges are all part of building a narrative and biography around the final product and the artist, which helps to create the artistic value of the work.

Howard Becker described four different types of artists as well. He described integrated professionals (those who conform to the norms of the artworld), mavericks (those who ignore the institutions and create something new, but stick with the form of the artworld), naïve artists (those who lack connection to the artworld, but get lumped in because what they’re doing fits within the concept of the artworld), and folk artists (who don’t even recognize that they’ve made art in the first place). These archetypal artists can be found in the case modding community.

Image 2 describes what I would consider the integrated professional. They’ve created a work of art that resembles the norm for the artworld. In this case it’s a computer that looks aesthetically pleasing as a result of the parts placed inside the PC. My informant Eric, is a maverick. In his design, he hollowed out a mannequin and used the whole of the mannequin as a case. He then painted and dressed the mannequin to look like a character from a well-known video game. He defied the norms of the artworld, and created something unexpected and unique. His case won the case competition at QuakeCon that year, and drew quite a large crowd when he first brought it in.

A naïve artist would be someone who creates their own style completely by accident because they haven’t been conditioned to the norms of the artworld, and thus make creations free of the constraints of the artworld. In several instances, I have seen cases that were initially built as desks. These builders simply
wanted to save space by integrating their computer design into that of a desk. Unwittingly, these builders have created a unique type of case mod. An example of a pc/desk is found in image 3.

Lastly, the folk artist would be someone who doesn’t even know they’ve made art. This is reflected in a base computer builder (like myself), where there may not be any concern for aesthetics. While they may not have modded their case, or painted the outside, or even concerned themselves too much with what the insides looked like, these builders have created art all the same. As an example, many of the praises coming from critics of case mods tend to revolve around cable management (power supplies come with cables that can’t be removed, but also aren’t always necessary, so hiding them to create a clean look is a big plus) and lighting. Most parts these days include LED’s, with some parts that have colors you can change on demand (my current graphics card and my previous power supply both did this). Simply by picking parts and constructing the computer, these engineers have created art.

**Roger:** There are things in that... computers as far as routing it for airflow and stuff that you take personal pride in, but you’re probably never going to go show someone, except for maybe at QuakeCon. If you have a big window, like, look, I routed my cables in way that it’s not just a mess in here.

Even though design may not have been the first thing in mind for Roger, he very clearly had an interest in how cable management was taken care of. He even states explicitly that QuakeCon is a unique place where people will be aesthetically interested in the airflow scheme.

**Material Merchants**

Many companies exist that aid the PC building marketplace in their artistic endeavors. There are manufacturers for CPUs, Cases, Fans, Power Supplies, Motherboards, Disc Drives, etc. These companies all have different designs that go far beyond just their instrumental need, especially when it comes to fan and case design. Additionally, there are plenty of companies that provide the tools that are necessary to actually mod cases. Both Eric and Michael, for example, called out their Dremel tools by name. Dremel is a company that makes tools specifically for do-it-yourselfers, and case modders are no exception. Also, many consumer-bought cases also come with glass, plastic, or plexiglass siding which allows for the interior to be visible to the user. This is one of the driving factors behind the cable management and lighting evaluations given out by critics. Without the “guts” of the computer being visible to others, none of these things would matter in an aesthetic evaluation. By making these sorts of aesthetically pleasing objects available, and visible while in use, these companies have provided the tools necessary to present computers as art.

There are also companies that specialize in case modding. One company, “Modders Inc.” provides tutorials, forums, and other resources for people interested in case modding. They also are frequently the driving factor behind many of the case design competitions that many of the modders enter. Another company, NVIDIA, had a presence at QuakeCon with their “GeForce Garage”, where they taught people individual skills that would allow them to design custom cases.

**Institutions**

Another category of actors that constitute the artworld are the institutions that help create a self-replicating effect for the artworld. For the “canon Artworld”, this means art schools and museums that curate the art. These institutions can also be found in the PC building community. As referenced earlier, the “GeForce Garage” is a resource that many PC builders can go to, to learn how to put their parts together as well as basic “How-to” videos on modifying cases. Additionally, there are thousands of videos found on YouTube that can instruct these builders on how to assemble their PC, as well as how to modify it.
QuakeCon itself acts as a potential museum for case mods. These PCs are put on display, with markers placed on the computers to identify them as part of their mod competition. The computers are usually used by their owners during the LAN party, but these PCs are given special status by these markers. Given the layout of the convention, many observers walk by these cases and stop to observe them and appreciate them as an individual piece of art. These computers are usually placed at key points in the convention. They can usually be found near exits, entrances, and near booths that usually get a lot of foot traffic. In many ways, this mirrors the behavior that one would expect at a museum. Works of art are placed among peers for them to be observed and critiqued. It can also be thought of as an art showing where the artist is present, allowing for feedback from their audience.

There are also several magazines that feature case design and computer building as their primary features. An example would be Computer Power User. Many of their articles feature discussions about specifications of new parts, and interviews with people in the computer industry, but they regularly have articles that feature case mods as well. Computer Power User will often show designs that have recently won competitions, as well as have interviews with the artists themselves. In many ways, it looks a lot like a publication that follows a specific medium of art. In one copy, the magazine interviews the CEO of Modders Inc. who describes the inception of the company as “for the sole purpose of allowing others to have a place where they could show off their work, talk about projects, and help others learn about modding.” There are other online spaces where these artists’ work can be shown as well.

Lastly, my informant, Michael, talked a lot about his experience at the Dallas Makerspace. The makerspace is a community driven workshop. Michael’s experience revolved specifically around 3d printing. Not all of the members there are designing case mods, but Michael made it clear that several of the competitors at QuakeCon that year were also from the Makerspace. This is quite similar to an art school, where artists would congregate and teach each other about their process, and try to create a unified aesthetic or method, resulting in something resembling a movement.

Michael: “How would you do this for the power supply?” He’ll have the old school way of doing it and I’ll have like the new school way of doing it

Describing his experience with his most recent build, Michael asked his father (who is a 3d printer as well) a question about process, and both have drastically different solutions to the same issue. This suggests that there are movements, even within the people who define themselves within a specific method of case modification - in this case, 3d printing.

Michael: ...with Makerspace I have such a huge community at the Makerspace that everybody encourages everybody about everything like, “Oh man, that’s the coolest project ever.”

With the members encouraging each other, teaching each other, and working together, they resemble an art school that helps induct new members, and replicate the movement into the future. These Makerspaces are also not unique to Dallas. Makerspace is a bigger entity that has 565 different institutions listed across the United States. While not all of them necessarily have a branch that specializes in computer building, the potential is there.

Modders-Inc also runs a competition called “24 hours of Le Mods” (a play on the Le Mans race), where PC designers are given 24 hours to design an entirely new PC from scratch. They’re given some parts and put on the clock. This event happened on the convention floor for everyone to see, and all three of the builders would explain their thought processes and what they were doing to their build to any passers-by that would listen. This is another example of a potential avenue through which someone interested in the form could learn more about the craft.
**Audiences**

Many of the participants at QuakeCon got a chance to marvel at the newest builds being brought in. As mentioned earlier, cases that were entered into the mod competition had special markers on them that let everyone at the convention know they were entered. Given the layout of the space, you’d be hard pressed to miss these computers as well. Modders-Inc and several other companies continually have a presence on the convention floor as well.

*Oscar:* I’ll go and chat with them every time I’m here. It’s really cool what they do.

When asked about Modders-Inc, Oscar demonstrates that he’s not only aware of their presence, but also expresses excitement about the opportunity to hear about new designs and relishes the opportunity to learn what he can about case modding. Oscar is not a modder himself, but he does think the designs are cool.

*Oscar:* I have not delved into it. I have gone and checked out forums and stuff and just see other people.

Oscar is the audience for which these computers were made. He clearly respects the effort and the ingenuity that comes with case design. He doesn’t do it himself, but he enjoys the aesthetic that is applied to something he has a passion for. All the others who hadn’t modded before had similar responses when asked if they had thought about case modding.

*Marcus:* Not too much. I’m not a very artistic personality. I can play a few instruments terribly, but beyond that I’m definitely slim mentality. I’ve got a huge appreciation. There’s some sexy shit around here.

Not only do people really appreciate the aesthetic qualities of the builds, but they also have a great deal of respect for the challenges the designers must face when creating such a design. The respondents I spoke with seemed very impressed with the technical know-how that comes with case modding.

*Marcus:* …but my thinking is just the engineering behind it. Honestly, the fact that those things hold together so well that you can transport them from home to here and there’s a lot of detail, there’s a lot of very fragile parts. Putting all that together is quite the talent.

It’s clear that there’s a sense of respect that these onlookers have for the design and the struggle of the artist. Many of the informants had expressed some level of inspiration that came with seeing these designs, too.

*Brent:* I’ve been wanting to do it. I’ve had friends that have done cardboard cases. I have friends that have done 3D-printed cases, so it’s like “That’s really interesting.”

Michael and Eric also both claimed that they had gotten their start in case modding when they saw various mods at QuakeCon themselves. Once they realized that something like this was possible, they became inspired to make their own designs. This is very similar to other art contexts, where one work of art stimulates another potential artist into creating their own piece or interpretation.

Not only do these case modders have an audience that they aim to please, they also have critics that they must appease as well. Sometimes it’s as simple as having your work judged against others for a competition, and other times it comes down to evaluating the work for its own sake.
Eric: They have such good poker faces. They don’t sit there and like “Wow, damn, you’re going to place”. They look like they hate everything. It’s awful. Getting judged by them is awful. They’re so good at not revealing what they think. I say I painted it all by hand and sanded it all and cut it all, sculpted the face by myself and all this. If I say that it’s not like I see their eyes light up, you know? They’re just like who cares? I could tell them I conjured it into existence with sheer willpower and they’d be like okay…and?

Eric felt intimidated by the eyes of the judges of the case modding competition at QuakeCon, who had a very critical eye for all the details in his case. In evaluating Eric’s cases against the others at QuakeCon, the judges took on the essential role of a critic. These judges also judged three different divisions of cases. The “Classic Case Mod” consists of any mod that is built from an existing bought retail PC case, a “Scratch-Build” Mod consists of any mod built from anything other than a PC case, and the “id/Bethesda Themed” Mod consists of any mod (classic or scratch) themed about id Software/Bethesda or any of their games (id and Bethesda were the primary hosts of QuakeCon). Past modders were allowed to enter, but previous entries were not allowed to resubmit. Many of the entrants had submitted builds in the past.

Eric: I walked up dressed as Ash to the CPU booth, and the CPU magazine guy is always a judge, and he said, “Oh, hey, you’re the guy who did the big spherical mod last year.” I’m like, well, I’m amazed that you A, recognized me, because I had green hair in 2014. I looked so different. Again, dressed as Ash. He said, “I actually owe you an apology.” I was like, “Why?” He said, “Because as soon as you got your mod out under the bright lights of the convention hall after we were giving away prizes I feel like we had made a mistake. There was just so much detail that we just couldn’t see in there.

Eric’s mod the year prior was a spherical mod that was designed to look like an object from a popular Bethesda game. It should be noted that building a spherical computer is not something easy to do. The judge, upon seeing the case in better lighting had regrets over choosing a different case as the winner. Eric was very proud to have come in third, and even to have gotten recognized was a feat for him.

Eric: The fact that you remembered me and felt the need to go out of your way to tell me that is like—that’s better than any prize. That was so cool. This dude travels the country looking at this shit. He works for CPU magazine. That was awesome. It felt so good.”

Much like any artist, Eric was not looking for an exchange of money or any other value to come from his case mod. He just really appreciated that his design resonated so well with someone that they could recognize him, even while dressed up as a character from a TV show. Having that acknowledgement of his work and getting recognition from a major critic was more rewarding than anything that could have been given to him.

DISCUSSION

This research suggests that, while many of the institutions necessary to creating an artworld aren’t appearing in their expected form (a museum, for example), they do appear in an adapted form that fits the context. Rather than a museum, these works are shown in conventions, online, and in magazines. Each of these outlets have critics that evaluate whether the work deserves to be shown in their forum, magazine, or otherwise. These gatekeepers determine what is and isn’t art within this context of PC builders. Additionally, the outlets allow for expressions of the narrative of the work of art, bestowing some of the artistic value on the created object. By virtue of the fact that the institutional theory of art defines art through the cultural institutions, it’s clear that an artworld exists within the context of PC building.
CONCLUSION

Evidence shows that an artworld exists within a consumer subculture. Using this information, marketing managers can foster an artworld in their consumer subculture by cultivating the institutions that constitute an artworld. By providing artists the resources to create their art, and a forum for which their art can be observed and critiqued, the manager will have created at least an ephemeral artworld for their subculture. Based on Service Dominant Logic, this is a worthy and desirable goal for a marketing manager to achieve (Vargo and Lusch, 2004; Ramsey et al. 2009). This can also be considered an extreme example of Brand Use and Community engagement in the process of collective value creation in Brand Communities (Schau et al. 2009).

One potential caveat is that most of the contexts that have been explored as having an artworld (computers, cars, motorcycles), have been extremely modular in their design. It is possible that modularity is a pre-condition for artists to appear. This merits more investigation to determine whether fostering the institutions that constitute an artworld would be sufficient for a self-sustaining artworld to exist. Additionally, more work needs to be done to understand boundary conditions of this research, as well as investigate more specific cases of what does and does not constitute an artworld.
REFERENCES


Appendix

Image 1:

Image 2:
### Table 1: Summary of Data Collection

<table>
<thead>
<tr>
<th>Data</th>
<th>Sites</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>QuakeCon</strong></td>
<td>- Roughly 25 informants, all male</td>
<td>- Informants asked about their experiences building a PC, what they thought about case modding, the personal story of their builds.</td>
</tr>
<tr>
<td></td>
<td>- Field notes taken about the details of the conventions and the presence of businesses on the convention floor</td>
<td></td>
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<tr>
<td></td>
<td>- Attended August 2015/2016</td>
<td></td>
</tr>
<tr>
<td><strong>Interviews with scratch case modders</strong></td>
<td>- 2 adult informants, male, mid twenties, college educated (Michael and Eric).</td>
<td>- Informants asked about their experiences building a PC, what they thought about case modding, the personal story of their builds. Also asked about how they felt during evaluation of their builds during the competition.</td>
</tr>
<tr>
<td></td>
<td>- One interview done on-site (Michael), one interview done via VOIP</td>
<td></td>
</tr>
<tr>
<td><strong>Self-reflective build</strong></td>
<td>- Author built an i5 PC for work/personal use.</td>
<td>- Brief notes were made reflecting on how the author felt, and what the author learned.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- PC being used to write dissertation</td>
</tr>
<tr>
<td><strong>Participant observation: electronic field work</strong></td>
<td>- Subreddit /r/buildapc browsed on a daily basis</td>
<td>- Author’s personal reflections</td>
</tr>
<tr>
<td></td>
<td>- Occasional checking of forums related to case modding</td>
<td>- Predominately used to get a sense for community and get immersed into the language of the field.</td>
</tr>
</tbody>
</table>
THE IMPACT OF MOBILE APP ADOPTION ON CONSUMER PURCHASE

Xian Gu and P. K. Kannan, University of Maryland

Abstract

Increasingly, companies are realizing that their mobile applications have become an indispensable channel to engage with customers, provide services, and increase customer spending. The purpose of this paper is to examine the impact of customer adoption of mobile applications on their omnichannel spending. Using data from a leading hospitality firm covering a four-year period, we investigate customer purchase behavior before and after mobile app adoption. Focusing on the customers who ultimately adopted the app during this period, we track the total spending of all the customers - overall and across each channel. Our analysis uses propensity score method to match consumers based on observables and uses difference-in-differences model to account for time variant unobservables which are common to all individuals. As an alternative methodology, we combine difference-in-differences specification with Heckman-style selection model to control for self-selection problem. In contrast with findings of previous literature, our analysis indicates that app adoption has a negative impact on average spending per customer. Similarly, at the channel level, we find that average dollar spent per customer in online and offline channels decreases over time post-app adoption, and average dollar spent per customer in third-party channels is negatively affected by app adoption. In particular, these effects are more evident for consumers who adopted app earlier than those who adopted later. Finally, while the average spending level in firm-owned channels is negatively impacted by app introduction, the spending share of firm-owned channels increases over time.

INTRODUCTION

The world is now on the wheels of mobile devices. According to the Pew Research Center, 90% of American adults had a mobile phone, 64% had a smart phone, 32% had an e-reader, and 42% had a tablet computer in 2014. Meanwhile, mobile applications are being used everywhere. The comScore reports that Internet usage on mobile app has overtaken that on PC in the US for the first time in January 2014. Meanwhile, mobile applications are being used everywhere. The comScore reports that Internet usage on mobile app has overtaken that on PC in the US for the first time in January 2014.

Brands consider mobile apps as a golden opportunity to engage directly with consumers, enhance consumption experiences, and beat competitors. Over 90% of the top 100 brands have launched mobile apps in Apple or Google app stores (Distimo 2013). Many brands use mobile apps as a new channel for selling products and offering services. For one, they expect higher spending from customers who adopt mobile apps and use omnichannel options. Over the past several years, mobile apps have become a major source of mobile revenues. In the last quarter of 2015, the share of retailers’ app revenue reached 54% of their total mobile revenue, exceeding the revenue share from mobile browser (Criteo 2015). Additionally, many companies have increasingly turned to services exclusive to mobile, which provide additional convenience for customers and cannot be realized in traditional shopping channels. For example, several hotel chains have offered digital key service which enables customers to unlock their room door using the
mobile app. Our research specifically applies to mobile apps which primarily serve as a shopping channel and are commonly provided by many retailers, airlines and hotel chains.

The introduction of mobile app raises several consequential marketing questions, most important of which is how mobile apps impact consumer purchase. In this paper, we leverage a unique panel data set from a major international hotel chain, which introduced its mobile app in August 2011. The data set covers a 50-month period between 2011 and 2015 and contains rich information about the consumer app adoption and usage, reservations, demographics and hotel characteristics. Focusing on a random sample of 50,000 consumers who adopted the app at five different time points, we examine the impact of mobile app adoption of customers on their total spending with the firm across all channels as well as spending in each channel.

We use propensity score method to match consumers based on their observables (e.g., pre-adoption behavior and demographics), and then apply difference-in-differences model on the matched sample to account for part of the unobservables (e.g., seasonal effects and advertising campaigns). As an alternative methodology, we combine difference-indifferences specification with Heckman-style selection model to control for self-selection problem. First, we investigate the impact on average spending across all channels. Based on conventional wisdom and past findings, we expect customers who adopt mobile app will spend more than those non-adopters. However, we find that app adoption has a negative impact on average spending per customer over time. Second, at the channel level, we find that average spending per customer in online and offline channels decreases over time post-app adoption, and average spending per customer in third-party channels is negatively affected by app adoption. In particular, these patterns are more evident for consumers who adopted app at earlier time points than those who adopted later. Even though the average spending amount in firm-owned channels is negatively impacted by app introduction, the relative spending share of firm-owned channels increases over time. Finally, we present several robustness checks to confirm these findings. Our findings may indicate that marketers may not always gain increase in revenue after app introduction, and we provide several hypotheses as why may be the case.

The contribution of our paper are as follows. First, our findings suggest a negative effect of app adoption on customer spending amount, which is contrary to prior research and thus worthy of further investigation. Second, we examine the adoption of apps over time by customer cohorts who adopted the app at different points of time. We find that the impact of app adoption differs across customer cohorts. Specifically, early app adopters suffer more from the negative effect of app adoption than consumer cohorts who adopted later. Finally, we show that mobile app adoption has asymmetric impact on spending through firm-owned channels and spending through third-party channels. The hypotheses we provide could form important research questions for future research. Even though we apply our model framework to a hotel chain, the approach can be generalized to analyze a broad range of multichannel firms such as retailers and airlines.
PRIOR LITERATURE

Our research relates to a broad body of literature on mobile marketing. Shankar and Balasubramanian (2009) offer a comprehensive review of analysis on mobile marketing. Shankar et al. (2010) extend the discussion by developing a conceptual framework for mobile marketing in the retailing environment. A prominent number of prior studies have focused on mobile advertising (Luo et al. 2013, Bart et al. 2014, Fang et al. 2015, Fong et al. 2015, Andrews et al. 2015) and various consumer behavior in the mobile context such as user content generation (Ghose et al. 2012) and word-of-mouth (Burtch and Hong 2014).

Our paper primarily contributes to an emerging stream of research on the impact of mobile applications. Past research has highlighted the positive impact of mobile app on individual spending. Dinner et al. (2015) examine whether mobile app usage can translate into sales and how this translation differs across online and offline channels. They focus on a clothing and apparel retailer which operates primarily online and has a single brick-and-mortar store. Using data from this retailer, they show that increased access to mobile apps increases both online and offline purchases, and online sales benefit more from the app. Similarly, Kim et al. (2015) find that both mobile app adoption and continued app usage increase overall spending using data from a coalition loyalty program. However, the mobile app does not serve as a full-fledged shopping channel in either of these two studies. Instead, the retailer’s app allows consumers to purchase one specific product that is promoted on each weekday, and the loyalty program app does not provide shopping function. Huang et al. (2016) focus on an e-commerce company which introduced a mobile shopping app in addition to incumbent web channel. They find that app adoption increases overall purchase, while slightly cannibalizing web sales. Gill et al. (2017) find that apps increase customer engagement and overall spending in the context of B2B. Finally, Boyd et al. (2016) show that mobile app increases firm value, revealing another positive perspective of apps.

Our paper also adds to the literature on multichannel marketing. Past work shows that multichannel shopping is associated with higher customer profitability (Venkatesan et al. 2007), and greater loyalty and lower price sensitivity (Chu et al. 2010). In a recent study by Montaguti et al. (2015), they conduct a randomized field experiment with a multichannel book retailer to test whether marketing campaigns can increase multichannel purchasing and average customer profitability. Using propensity score matching method, they find that customers who use both online and offline channels are more profitable than they would be if they used a single channel. In addition, Li et al. (2015) explore the impact of online channel adoption on purchase of different customer segments. They find that online channel adoption increases purchase of light shopper segments while not impacting purchase of heavy shopper segments. Finally, Wang et al. (2015) and Huang et al. (2016) specifically focus on the introduction of mobile channel, and recognize its positive impact on overall spending.

Based on the extant research on mobile app and multichannel marketing, it is clear that overall spending is likely to increase after mobile app adoption. While we also expect overall spending to grow in
our research, we would like to test this effect across different customer cohorts. Therefore, we can examine whether the effect is homogeneous across cohorts as the mobile app is being developed over time. Moreover, the company in our research gets portion of its revenue from a number of third-party channels such as global distribution systems and online travel agencies to whom they have to pay commissions. Mobile apps help customers to be in contact with the firm directly, and therefore customers may approach the firm directly rather than through third-party channels. One of the hypotheses in our research is that mobile channel has positive spillovers on other firm-owned channels because of the synergistic aspects of mobile. As a result, the firm can benefit from the mobile app by strengthening the relative share of its own channels against the third-party channels.

**DATA**

The data are obtained from a leading international hotel chain based in the US. We focus on the sample period from January 2011 through February 2015, which consists of a total number of 50 months. Our focal firm launched its mobile app in August 2011, offering a variety of functions including member account management, hotel reservation management as well as bookings. In order to examine the effect of mobile app adoption, we specifically focus on existing customers that joined the reward membership program before the beginning of our sample period, i.e., January 2011. This restriction ensures that our analysis is based on comparisons between existing customers instead of comparisons between existing customers and new customers. Figure 1 shows the number of app adopters among existing customers in each month. The total number of existing customers who adopted the mobile app before February 2015 is 1,085,609. A large group of customers adopted the app in the first few months of app launch.

In this study, we use a random sample of 50,000 customers, and the details of our sample selection process will be discussed in the next section. We observe the reservation characteristics of these 50,000 customers. Overall, these consumers make 1,298,876 reservations. For each reservation, we observe the gross revenue, number of room nights, booking channel, hotel features, reservation date, as well as the dates of hotel stays. On average, the revenue per reservation is $387.50 and the number of room nights per reservation is 2.8. In addition, 65% of booked hotels are economy brands, 33% are upscale brands, 2% are luxury brands, 66% are franchised, and 89% locate within the US. Finally, 32.21% of hotel stay periods are during weekends and 7% during holiday periods such as Thanksgiving, Christmas or New Year.
The hotel chain generates revenues from both firm-owned channels and third-party channels. We refer firm-owned channels as inner channels, which are operated by the hotel chain. The inner channels include online (i.e., online website), offline (i.e., property and call center) and mobile (i.e., mobile app and mobile website) channels. The hotel chain sets the same price and assortment across its inner channels. On the other hand, outer channels include global distribution system (GDS), which are primarily used by travel agents, and online travel agencies such as Expedia and Travelocity. On average, consumers make 76.25% of the reservations through inner channels as opposed to 19.31% through outer channels. As shown in Table 1, 48.45% of reservations are made through online channel, 24.08% through offline channel, 3.72% through mobile channel, 18.17% through GDS channel, and 1.14% through OTA channels.
Table 1: Reservation Share across Channels

<table>
<thead>
<tr>
<th>Reservation Channel</th>
<th>Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inner Channel</td>
<td>76.25%</td>
</tr>
<tr>
<td>- Online Website (Online)</td>
<td>48.45%</td>
</tr>
<tr>
<td>- Property and Call Center (Offline)</td>
<td>24.08%</td>
</tr>
<tr>
<td>- Mobile App and Website (Mobile)</td>
<td>3.72%</td>
</tr>
<tr>
<td>Outer Channel</td>
<td>19.31%</td>
</tr>
<tr>
<td>- Global Distribution System (GDS)</td>
<td>18.17%</td>
</tr>
<tr>
<td>- Online Travel Agencies (OTA)</td>
<td>1.14%</td>
</tr>
<tr>
<td>Unknown</td>
<td>4.44%</td>
</tr>
</tbody>
</table>

Based on the reservation information, Figure 2 displays the average monthly spending per customer in all channels, inner channels and outer channels. First of all, the average monthly spending per customer follows an upward trend over time. Moreover, the spending level of inner channel is more than twice greater than that of outer channel. This increasing trend of consumer spending may lead firm to have a wrong picture, and thus masks the real problem as we find based on the empirical analysis. Finally, the figure clearly shows a seasonality effect such that the spending levels always drop in November and December. Appendix A.1 presents further graphs for consumer purchase in terms of the number of bookings and room nights, presenting a similar pattern as of spending. Furthermore, Table 2 compares customer purchase before and after mobile app adoption across each channel. The average monthly overall spending before app adoption is $209.64, which increases by $16.79 post-adoption. The average spending increases in every channel whereas the spending drops in the offline channel. Both the overall number of bookings and the overall number of room nights increase after app adoption.
In addition to reservation information, we also observe the date when each consumer adopts the mobile app, the number of monthly search that he conducts in the app, and whether he uses the mobile check-in service in each month. Mobile check-in is an app feature that was introduced in July 2013. This service feature allows customers to check-in and check-out using the mobile app. When the room is ready, the customer will be automatically notified by an in-app alert, and then he can pick up his key at a mobile check-in kiosk without waiting in the long line at front desk. At the end of his stay, he can check out via the app and get a copy of bill by email. 18.11% consumers have used mobile check-in service for at least once, and 1.79% consumers use mobile check-in in each month. The customers in our sample make 0.14 times of search using the mobile app in each month. Finally, we have demographic data of the 50,000 consumers. The average customer age is 47 years old. 27.7% of customers are female, 67.6% are married, and 87.4% live in the US. Finally, the average member tenure is 5.7 years up to the beginning of January 2011.
Table 2: Outcome Variables

<table>
<thead>
<tr>
<th></th>
<th>Before</th>
<th>After</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Spending (§)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall</td>
<td>209.64</td>
<td>226.43</td>
<td>16.79</td>
</tr>
<tr>
<td>- Inner Channel</td>
<td>143.43</td>
<td>155.28</td>
<td>11.85</td>
</tr>
<tr>
<td>- Online Website (Online)</td>
<td>86.77</td>
<td>97.10</td>
<td>10.33</td>
</tr>
<tr>
<td>- Property and Call Center (Offline)</td>
<td>56.46</td>
<td>48.16</td>
<td>-8.30</td>
</tr>
<tr>
<td>- Mobile App and Website (Mobile)</td>
<td>0.20</td>
<td>10.02</td>
<td>9.82</td>
</tr>
<tr>
<td>- Outer Channel</td>
<td>48.25</td>
<td>50.35</td>
<td>2.09</td>
</tr>
<tr>
<td>- Global Distribution System (GDS)</td>
<td>46.08</td>
<td>48.08</td>
<td>1.99</td>
</tr>
<tr>
<td>- Online Travel Agencies (OTA)</td>
<td>2.17</td>
<td>2.27</td>
<td>0.10</td>
</tr>
<tr>
<td><strong>Bookings</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall</td>
<td>0.64</td>
<td>0.71</td>
<td>0.07</td>
</tr>
<tr>
<td>- Inner Channel</td>
<td>0.49</td>
<td>0.55</td>
<td>0.06</td>
</tr>
<tr>
<td>- Online Website (Online)</td>
<td>0.32</td>
<td>0.35</td>
<td>0.03</td>
</tr>
<tr>
<td>- Property and Call Center (Offline)</td>
<td>0.17</td>
<td>0.15</td>
<td>-0.02</td>
</tr>
<tr>
<td>- Mobile App and Website (Mobile)</td>
<td>0.001</td>
<td>0.05</td>
<td>0.05</td>
</tr>
<tr>
<td>- Outer Channel</td>
<td>0.13</td>
<td>0.13</td>
<td>0.004</td>
</tr>
<tr>
<td>- Global Distribution System (GDS)</td>
<td>0.12</td>
<td>0.12</td>
<td>0.004</td>
</tr>
<tr>
<td>- Online Travel Agencies (OTA)</td>
<td>0.01</td>
<td>0.01</td>
<td>-0.001</td>
</tr>
<tr>
<td><strong>Room Nights</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall</td>
<td>1.59</td>
<td>1.60</td>
<td>0.01</td>
</tr>
<tr>
<td>- Inner Channel</td>
<td>1.12</td>
<td>1.13</td>
<td>0.01</td>
</tr>
<tr>
<td>- Online Website (Online)</td>
<td>0.65</td>
<td>0.70</td>
<td>0.04</td>
</tr>
<tr>
<td>- Property and Call Center (Offline)</td>
<td>0.46</td>
<td>0.37</td>
<td>-0.10</td>
</tr>
<tr>
<td>- Mobile App and Website (Mobile)</td>
<td>0.001</td>
<td>0.07</td>
<td>0.07</td>
</tr>
<tr>
<td>- Outer Channel</td>
<td>0.33</td>
<td>0.32</td>
<td>-0.01</td>
</tr>
<tr>
<td>- Global Distribution System (GDS)</td>
<td>0.31</td>
<td>0.30</td>
<td>-0.01</td>
</tr>
<tr>
<td>- Online Travel Agencies (OTA)</td>
<td>0.02</td>
<td>0.01</td>
<td>-0.01</td>
</tr>
</tbody>
</table>

**EMPIRICAL ANALYSIS**

Our empirical analysis consists of three steps. We first construct our sample by defining five consumer cohorts by defining five consumer cohorts who vary in the time of specific month in which they adopted the focal mobile app. Second, we use propensity score matching (PSM) method for each pair of two consumer cohorts. Finally, we estimate the impact of app adoption on spending by applying difference-in-differences technique to each pair of the matched cohorts. We use these three methods to reduce self-selection bias, which is a major concern of our empirical analysis, as much as possible. In addition, we combine difference-in-differences specification with Heckman-style selection model as an alternative
methodology to control for self-selection problem. We obtain consistent results across different analysis.

**Consumer Cohorts**

We define five different consumer cohorts on the basis of the timing of their app adoption: August 2011, June 2012, March 2013, April 2014 and February 2015 (see Figure 3). We select the five cohorts in such a way that there is enough time gap between them and also there is enough heterogeneity in the months that we are considering, reducing seasonal effects which may affect our results. In addition, the five selected months spread over the entire observed time period of customer app adoption between August 2011 and February 2015. Then we construct our sample by randomly drawing 10,000 consumers from all adopters in each of the five months. Therefore, our sample includes five consumer cohorts adding up to a total number of 50,000 consumers.

![Figure 3: Adoption Timing of Five Consumer Cohorts and Monthly App Adopters](image)

Notes: The values for February 2012 and March 2014 are missing and denoted by dashed lines.

Table 3 summarizes consumer spending behavior and demographic information of each of the five cohorts. As we expect, heavy spenders adopted the app earlier than light spenders. In particular, consumers who adopted first in August 2011 spent three times as much as the latest adopters' spending before adoption. We observe this positive relationship between timing of adoption and pre-adoption spending levels for each channel. In addition, consumers who adopted app earlier have a higher spending share of inner channels. However, the average spending amount of consumers in cohort 1 and 2 drops after app adoption, whereas the amount increases for consumers in cohort 3 and 4. Interestingly, consumers in cohort 4 spend even more than those in cohort 1 after adoption. On the contrary, cohort 1 still hold the highest spending share in inner channels. Finally, consumers from different cohorts are similar in terms of age, gender, marital status and nationality. However, it shows that consumers with longer member tenure tend to adopt the app later.
Furthermore, Figure 4 displays the time trend of overall monthly spending of each cohort. We observe several noticeable patterns. First, consumers who adopted earlier are those who have higher spending amount before app introduction. This pattern is consistent with our findings in Table 3. Second, consumers increase their spending over time before their app adoption. It may suggest that consumers are more likely to adopt the app when they feel they have more chances to use it. Third, consumers who adopted in a month spend the most in that month no matter what spending level they have at the beginning. Finally, the average spending of cohort 1 decreases most significantly after adoption. The pattern suggests that mobile app may have the most negative impact on the earliest adopters. Further graphs of the number of bookings and room nights are presented in Figure 7 in Appendix A.1. These graphs are entirely consistent with the patterns in Figure 4.
In summary, these patterns imply that the cohorts are very different from each other. Therefore, we use propensity score matching and difference-in-differences methods to account for self-selection bias. Although there are unobservables which are not controlled for, we compare each consumer cohort to the cohorts which have the closest as well as furthest time points of adoption in order to ensure we get robust results.

Propensity Score Matching

For each cohort and their corresponding month of adoption, we use propensity score matching method to match them with consumers in the other cohorts which have not adopted the app yet in that particular month. For example, consumers in cohort 1 adopted the app in August 2011 while the other cohorts have not adopted yet. Therefore, we can match consumers in cohort 1 with those in cohort 2, 3, 4 and 5, with cohort 1 being the treated group and the other cohorts being the control groups. Similarly, when we use cohort 2 as the treated group, cohort 3, 4 and 5 are used as the control groups. Overall, we construct 10 pairs of treated and control groups. This basic matching approach allows us to find non-adopters whose estimated propensity scores are closest to those of the adopters. In our context, the propensity score is the probability of consumers adopting the mobile app.

We use a logistic model and cross-sectional data to estimate the propensity score for each pair of cohorts.

\[
\Pr(\text{Adopt}_{ij} = 1) = \alpha_0 + Z_{ij}^\top \alpha_1 + D_i \alpha_2 + c_{ij}
\]

(1)

where \(\text{Adopt}_{ij} = 1\) if consumer \(i\) adopted the app when the comparison cohorts are of pair \(j\). For instance,
we assume consumer $i$ belongs to cohort 2. Then $\text{Adopt}_{ij} = 1$ if $j$ is the pair of cohort 2 and 3, while $\text{Adopt}_{ij} = 0$ if $j$ is the pair of cohort 2 and 1. $Z_{ij}$ represents the variables associated with consumer $i$’s spending level and reservation characteristics prior to the adoption month of pair $j$. It includes average monthly spending amount in online, offline, GDS and OTA channels (scaled by 1,000 dollars), whether consumer $i$ has ever made a reservation for weekend or holiday periods, whether consumer $i$ has ever booked a franchised, domestic, luxury brand, upscale brand or economy brand hotel, whether consumer $i$ has ever booked a hotel located in the airport, downtown, resort, suburban, expressway or metro area. As we summarized in the previous section, Figure 4 depicts an increasing trend of average monthly spending just prior to adoption. As a result, we create a variable, $\Delta$Spending, to capture the predictive power of this increasing trend. Specifically, $\Delta$Spending = Spending$_{t-1} -$ Spending$_{t-4}$, where $t$ is the month when adoption happened. $Z_{ij}$ differs across $j$ because we consider a different time frame for each cohort pair. $D_i$ captures consumer $i$’s demographic information including age (in years), gender, marital status and level of reward membership of the focal hotel.

The propensity score matching method ensures that all consumers are comparable in terms of the estimated probability of app adoption based on the observables. As a common practice, we restrict our sample to a region of common support of estimated propensity scores.

**Difference in Differences**

In order to test the effects of app adoption on consumer spending, we apply the difference-in-differences analysis to the panel data of matched samples. For each cohort pair, we define the pre-treatment periods as six months prior to adoption, and post periods as six months after adoption. Given that Figure 4 shows extraordinary spikes in each of the adoption months, we do not include the particular month in which the adoption happened so as to reduce potential bias. The random-effects model is given by the following specification where the subscript for pair $j$ is suppressed.

$$Y_{it} = \beta_0 + \beta_1 \text{Adopt}_{it} + \beta_2 \text{Month}_{it} + \beta_3 (\text{Adopt} \times \text{Post})_{it} + X_{it}'\gamma + W_i'\theta + \mu_i + \epsilon_{it} \quad (2)$$

where $Y_{it}$ is the dependent variables, which include the logarithm of spending amount as well as the spending share - overall and across each channel. Similar as those in the logistic model, $X_{it}$ represents a vector of time-varying customer $i$’s reservation characteristics in month $t$. $W_i$ is customer $i$’s demographic information. $\mu_i$ captures unobserved individual fixed effect. $\epsilon_{it}$ is the error term which is assumed to be correlated over time for each individual and independent across customers. Most importantly, we use the DID analysis to account for any unobserved factors which are common to all consumers. A few examples include nonlocal marketing campaigns such as TV advertisement by the focal firm or its competitors, economic shocks, and seasonal effects.

**Difference in Differences with Selection on Unobservables**

As an alternative methodology, we combine difference-in-differences specification with Heckman-style selection model to control for self-selection problem. In particular, we add the inverse Mills ratio
(IMR) as an explanatory variable to the difference-in-differences model to control for unobservable variables which impact both app adoption and spending (Heckman 1979; Gill et al. 2017).

\[ Y_{ijt} = \beta_0 + \beta_1 \text{Adopt}_{ijt} + \beta_2 \text{Month}_{t} + \beta_3 (\text{Adopt} \times \text{Post})_{ijt} + X'_{ijt}\gamma + W'_{ijt}\theta \]

where IMR denotes the inverse Mills ratio, which is derived based on the selection equation which characterizes customer’s adoption decision:

\[
\Pr (\text{Adopt}_{ij} = 1) = Z_{ij} \alpha + \xi_{ij} \quad \text{(Selection Equation)} (4)
\]

\[ \text{IMR}_{ij} = \text{Adopt}_{ij} \times \frac{\phi(Z_{ij}\alpha)}{\Phi(Z_{ij}\alpha)} + (1 - \text{Adopt}_{ij}) \times \frac{\phi(Z_{ij}\alpha)}{\Phi(Z_{ij}\alpha) - 1} \]

where \( Z_{ij} \) represents the variables associated with consumer \( i \)'s spending level and reservation characteristics prior to the adoption month of pair \( j \). It also includes consumer \( i \)'s demographic information such as age, gender, marital status and reward membership level. The selection equation is estimated by probit model.

RESULTS

Results of Propensity Score Matching

Table 4 presents the estimation of parameters for the logistic model of app adoption. The results confirm our graphical evidence in Figure 4 that: (1) Consumers who spend more have a higher probability of adoption given that the estimates for online, offline and GDS spending, which represent the majority amount of overall spending, are all positive. Also, we find that estimates for online spending have larger magnitudes than those for other channel, indicating mobile app adoption decision is most likely to be correlated with consumers’ past purchase behavior through the online channel; (2) The increasing spending amount also predicts a higher probability of adoption given that the estimates for \( \Delta \text{Spending} \) are significantly positive.

In addition, the predictive power of reservation characteristics are not consistent across different cohort pairs. Specifically, the signs of estimates differ across cohort comparisons. For example, consumers in cohort 1, 2 and 3 are much more likely to adopt the app if they have ever made reservations for the weekends prior to adoption. However, the probability of adoption drops by 10.1% for cohort 5 if weekend periods have ever been booked.

Finally, the estimates for demographic variables indicate that younger consumers are more likely to adopt the mobile app. The probability of adoption increases by 3.6%~13.1% if consumers are one year younger, holding all else equal. Not surprisingly, consumers who are more loyal to the focal firm, i.e., platinum and gold members, are more likely to adopt.
After we restrict our sample to a region of common support of the propensity score, on average 20% consumers are excluded from our analysis. The graphic proof of balanced matching is provided in Figure 5.
### Table 4: Estimates for Propensity Score Matching

<table>
<thead>
<tr>
<th>Variables</th>
<th>(1) Cohort 1 vs 2</th>
<th>(2) Cohort 1 vs 3</th>
<th>(3) Cohort 1 vs 4</th>
<th>(4) Cohort 1 vs 5</th>
<th>(5) Cohort 2 vs 3</th>
<th>(6) Cohort 2 vs 4</th>
<th>(7) Cohort 2 vs 5</th>
<th>(8) Cohort 3 vs 4</th>
<th>(9) Cohort 3 vs 5</th>
<th>(10) Cohort 4 vs 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pre-Adoption Spending</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Δ Spending</td>
<td>0.0709***</td>
<td>0.0884**</td>
<td>0.0641**</td>
<td>0.105***</td>
<td>0.123***</td>
<td>0.170***</td>
<td>0.214***</td>
<td>0.102***</td>
<td>0.137***</td>
<td>0.408***</td>
</tr>
<tr>
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* *** p<0.01, ** p<0.05, * p<0.1*
Results of Difference-in-Difference Analysis

Table 5 presents the DID estimates with matched sample and Heckman selection model for overall spending and inner and outer channels spending. Surprisingly, most of the estimates for \((\text{Adopt} \times \text{Post})_t\) of overall spending are negative and statistically significant at 1% level. This reveals that mobile app has a negative impact on all channel spending. Moreover, the early adopters exhibit a larger negative impact: comparing with consumers in other cohorts, cohort 1 drops their overall spending by approximately 12%, cohort 2 drops by approximately 7%, and cohort 3 and 4 drop by less than 10%. In addition, the estimates of DID model with PSM matched sample are similar to those of DID model with Heckman selection model.
Regarding the effects on monthly spending amount in inner and outer channels, there is heterogeneity across cohorts. For cohort 1 and 2, app adoption has significantly negative impacts on both inner and outer channel spending. On the contrary, app adoption has positive impacts on inner channel spending of cohort 3 and 4. Furthermore, app adoption has significantly positive impacts on inner spending share of cohort 2, 3 and 4. The estimates of cohort 1’s inner channel spending share are negative, but they are not statistically significant.

Table 6 contains the results of DID analysis for multichannel spending amount and spending shares. In general, the estimates show evidence that app adoption have negative impact on the spending amount in both online and offline channels across all cohorts. For GDS channels, cohort 1, 2 and 4 drop their spending amount whereas cohort 3 increase their spending. Lastly, the impact of app adoption on OTA channels are not notable for cohort 1, 3 and 4 given the small magnitudes and insignificance of estimates. On the contrary, cohort 2 drops their OTA spending by approximately 3% after app adoption.

**Segmentation**

Table 7 presents the DID estimates with matched sample for overall spending of different segments of customers. First, among earliest adopters (i.e., cohort 1), elite customers who have gold or platinum membership decrease their spending more severely that non-elite customer who have basic or silver membership. However, for later adopters (i.e., cohort 3 and 4), the pattern reversed in the sense that non-elite customers reduce spending more than elite customers. Second, there is similar pattern in results of heavy spenders whose average spending is among top 50% of all customers and light spenders whose average spending is among bottom 50% of all customers. Again, early adopters who spend heavily have larger negative effects on their spending than early adopters who spend not heavily. This result is not surprising because the segment of elite customer may overlap greatly with the segment of heavy spenders. Finally, we also divided customers into segments based on channel usage. For earliest adopters (i.e., cohort 1), mobile channel users and digital channel (i.e., mobile channel and online website) users have more negative impact than customers who do not use mobile or digital channels, respectively. For later adopters, non-mobile and non-digital channel users have more negative impact than mobile channel users and digital channel users, respective.

**Robustness Checks**

We conduct a series of robustness checks and find similar results. First, we repeated the matched DID analysis with two additional outcome variables: the average monthly number of room nights per consumer and the average monthly number of bookings per consumer. As shown in Table 8 in Appendix B.1, the impact of app adoption on overall room nights is significantly negative for consumers in cohort 1, 2 and 4, while the effect is not significant for cohort 3. This negative effect also holds for bookings of cohort 1 whereas the effect is not statistically significant for cohort 2, 3 and 4.
Table 5: Treatment Effects of DID Analysis

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<th>Model</th>
<th>(1) Cohort 1 vs 2</th>
<th>(2) Cohort 1 vs 3</th>
<th>(3) Cohort 1 vs 4</th>
<th>(4) Cohort 2 vs 3</th>
<th>(5) Cohort 2 vs 4</th>
<th>(6) Cohort 2 vs 5</th>
<th>(7) Cohort 3 vs 4</th>
<th>(8) Cohort 3 vs 5</th>
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<td>-0.121***</td>
<td>-0.111***</td>
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*** p<0.01, ** p<0.05, * p<0.1
Table 7: Treatment Effects of DID Analysis on Customer Segments

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<th>(6) Cohort 2 vs 4</th>
<th>(7) Cohort 2 vs 5</th>
<th>(8) Cohort 3 vs 4</th>
<th>(9) Cohort 3 vs 5</th>
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<td>Light Spender</td>
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<td>(0.0117)</td>
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<td>Digital User</td>
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<td>(0.0128)</td>
<td>(0.0125)</td>
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<td>Non-Digital User</td>
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<td>-0.0455</td>
<td>-0.0831***</td>
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<td>-0.126***</td>
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<td>-0.0252</td>
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*** p<0.01, ** p<0.05, * p<0.1
Next, we address the concern that the mobile app adoption may not have a considerable impact if consumers do not use the app frequently after downloading it. By restricting our sample to consumers who are among the top 50% active app users (defined by the number of app searches), we show that early adopters have a significant negative impact on their overall spending. The magnitudes are greater than estimates based on full sample, indicating that active app users who adopted app early exhibit a larger negative effect. Nevertheless, customers who adopted app later have positive impact on overall spending. The results are shown in Table 9 in Appendix B.2.

Furthermore, we extend the time frame of our panel sample from one year to two years to rule out the possibility that the drop in post-adoption period is due to the regression-to-the-mean effect. Given the gap between cohorts, we are only able to repeat the matched DID analysis on comparison between cohort 2 and 4, cohort 2 and 5, cohort 3 and 4 and cohort 3 and 5. Table 10 in Appendix B.3 confirms the negative impact of app adoption on overall spending as well as channel-specific spendings. Finally, we also extend the length of treatment window from one month to five months to rule out the regression-to-the-mean effect. Table 11 in Appendix B.4 shows consistent negative impacts on overall spending of cohort 1 and 2 while the estimates for cohort 3 and 4 are neither significant nor with substantial magnitude.

Discussions

Our results consistently show that mobile app adoption has a negative impact on consumer overall spending in our context, contradicting with the conventional wisdom. It is even worse that such a negative impact is more severe for consumers who adopted the app earliest. Regarding these effects, we conjecture two possible explanations. First, it is likely that the focal mobile app does not provide a good quality so that consumers are not satisfied with their usage experiences and thus reduce the spending. In particular, the consumers who adopted the app early are the heavy spender. It is likely that they adopt the app early in the expectation that they will be using it and thus benefit from it the most because they usually make more reservations and use hotel more frequently. If they find the app is not of a very high quality after adoption, then they may feel disappointed given that the app fails to meet certain level of quality expectations.

The second explanation is that consumers who adopted the app early are also most likely to adopt competitive apps. For example, we hypothesize that if consumers spend a significantly large amount with the focal hotel, they may also spend a large amount with those competitive hotels. They may adopt other apps and find that those apps have better quality than the focal app. As a result, they may perceive and rate the focal firm's app lower than competitors' apps. Thus, they may spend more on competitive websites and apps which provide greater convenience or ease of booking for them. As a result, the focal firm tends to lose its heavy spending consumers to competitors if it does not do a good job in app competition.

Early adopters of mobile apps are exposed to a different environment in which they are more likely to be attracted by competitors' apps. As a result, customers who adopt mobile app early may become less loyal and increase their frequency of shopping around, which in turn may reduce their spending amount at
a particular firm. For example, Court et al. (2017) discussed in their report that mobile shopping apps and new technologies have changed consumer decision journey such as product consideration and purchase. In particular, mobile apps make it vastly easier for customers to research and purchase products, and thus consumers are more likely to shop around. They researched 30 categories of products and found that only 3 were loyalty driven, with consumers repurchasing the same brand rather than shopping around. Therefore, from the firm's prospective, they may need to take into account the quality of their own app as well as the quality of competitive apps. It is not always optimal to release the app immediately to the marketing. On the contrary, firms may sometimes be better off if they wait until their app's quality has been perfected.

CONCLUSION

In this paper, we investigate the impact of mobile app adoption on customer total spending as well as spending in each channel. Using data from a major international hotel chain, our estimates of difference-in-difference analysis suggest that app adoption has a negative impact on average spending per customer over time. At the channel level, we find that average spending per customer in online and offline channels decreases over time post-app adoption, and average spending per customer in third-party channels is negatively affected by app adoption. Moreover, we find that early adopters are the heavy spenders, but they exhibit more severe drops in their spending after app adoption. In addition to spending amount, we also focus on the relative spending share of firm-owned channels against third-party channels. Although the average spending amount in firm-owned channels is negatively impacted by app adoption, the relative spending share of firm-owned channels increases over time. Overall, our results suggest that mobile app is not necessarily associated with higher consumer spending.

There are several possibilities for future research. First, our data set does not contain marketing campaign information such as deals. This limitation is not severe in our study because consumers commonly know that hotel prices, similar to airfares, change constantly over time and are usually higher with a shorter booking window. However, future research may consider taking marketing campaigns into account while applying our model to firms in other industries. Second, from a modeling perspective, we do not specifically characterize how consumers choose other hotel brands' mobile apps or products since we do not observe their outside activities. We leave this question to future study. Finally, our app usage data are at a monthly level and therefore we cannot distinguish the reservations in which consumers used app service. Future research may improve our estimation by using reservation-level data on app service.
APPENDIX A

A.1 Future Graphs of Consumer Purchase

Figure 6: Average Monthly Purchase

(i) Bookings

(ii) Room Nights
Figure 7: Average Monthly Purchase per Cohort

(i) Bookings

(ii) Room Nights
## B.1 Robustness Check: Room Nights and Bookings

Table 8: Treatment Effects of DID Analysis (room nights and bookings)

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Room Nights (all channels)

| Adopt<sub>i</sub>   | 0.00376*** | 0.00504*** | 0.00544*** | 0.00732*** | 0.00322*** | 0.00529*** | 0.00450*** | 0.00257*** | 0.00303*** | 0.00325*** |
|                     | (0.00104)  | (0.00103)  | (0.00103)  | (0.00102)  | (0.000957) | (0.000935) | (0.000917) | (0.000939) | (0.000901) | (0.000899) |
| Adopt<sub>i</sub>×Post<sub>t</sub> | -0.00256**  | -0.00286*** | -0.00270**  | -0.00249**  | 0.000871   | -0.000872  | 0.000511   | 0.00161   | 0.00162   | 0.000916   |
|                     | (0.00118)  | (0.00116)  | (0.00113)  | (0.00111)  | (0.00115)  | (0.00110)  | (0.00107)  | (0.00111)  | (0.00108)  | (0.00111)  |

Bookings (all channels)

*** p<0.01, ** p<0.05, * p<0.1
B.2 Robustness Check: Active Mobile App Users

Table 9: Treatment Effects of DID Analysis (active app users)

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*** p<0.01, ** p<0.05, * p<0.1
### B.3 Robustness Check: Two Years

Table 10: Treatment Effects of DID Analysis (two years)

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<th>Variables</th>
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<th>(3) Cohort 3 vs 4</th>
<th>(4) Cohort 3 vs 5</th>
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*** p<0.01, ** p<0.05, * p<0.1
## B.4 Robustness Check: Five-Month Gap

### Table 11: Treatment Effects of DID Analysis (five-month gap)

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<th>(6) Cohort 2 vs 4</th>
<th>(7) Cohort 2 vs 5</th>
<th>(8) Cohort 3 vs 4</th>
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*** p<0.01, ** p<0.05, * p<0.1
REFERENCES


THE EFFECT OF SOCIAL IDENTITY THREAT ON CONSUMER PREFERENCE FOR NAME (VS. GENERIC) BRANDS

Frank Cabano and Sanjay Mishra, University of Kansas

Social or group identity threats have been ubiquitous in human history (Kurzban and Leary 2001). Unfortunately, such threats are becoming increasingly commonplace and problematic in the U.S. and throughout the world. For example, 2016 statistics show that once about every 95 minutes in the U.S. someone is attacked because of their group membership(s), which represents a 6% increase over the previous year (Lichtblau 2016). In the more populated European Union, the frequency of hate crimes is even higher and more challenging for national governments to address (Greenblatt and Massimino 2016). At the same time, brands have become a central component in most consumers’ lives, leading marketing scholars and practitioners alike to refer to brands as the ‘new religion’ and brand builders as akin to missionaries of Christianity and Islam (Tomkins 2001). Indeed, national data suggests that Americans spend an additional $44 billion dollars on name brands when there are similar quality and cheaper generic brand substitutes (Bronnenberg, Dube, Gentzkow, and Shapiro 2014). One question that arises is are these seemingly distinct phenomena actually related? In other words, may social identity threat affect the preference for name (vs. generic) brands?

There is a recent upsurge in interest in the effects that social identity threats can have on marketplace behavior (e.g., White, Argo, and Sengupta 2012). Researchers have examined how such threats affect consumer behavior in contexts that are directly implicated by the threat itself. For example, consumer researchers have elucidated how social identity threats decrease preference for identity-linked products for consumers with low (vs. high) collective self-esteem (White and Argo 2009). As a further illustration, in the gift-giving domain, Ward and Broniarczyk (2011) showed that purchasing an identity-inconsistent gift for a close other threatened the giver’s social identity, leading the giver to subsequently show a heightened preference for identity-linked products in order to reaffirm their identity. However, little is known about how social identity threat may affect consumer choice behavior more generally, or in contexts that are not directly implicated by the social identity threat. This is a significant omission in the literature because the effects of social identity threat may be underestimated and not fully understood if in fact they have an influence on the purchasing behavior of not only identity-linked products, but also on products that are not related to the threatened identity. Additionally, although there is a rich body of research on how the desire to confirm or signal one’s social identity influences brand choices (e.g., Aaker 1997; Aaker, Benet-Martinez, and Garolera 2001; Chan, Berger, and Van Boven 2012), marketing researchers have yet to explore how social identity threats impact brand choice. Indeed, despite the importance of name brands in consumers’ lives, the proliferation of generic brands over the past few decades has been equally remarkable. Generic brand sales reached an all-time high of $118.4 billion in 2015, capturing a record 17.7% of the total US market (Generic Label Manufacturers Association 2016). Thus, a fundamentally important marketplace decision that consumers must make is whether to purchase a name or generic brand. Considerable theoretical research has been devoted to understanding the antecedents of name and generic brand usage (e.g., Ailawadi, Neslin, and Gedenk 2001; Erdem, Zhao, and Valenzuela 2004; Raju, Sethuraman, and Dhar 1995). However, despite their ubiquity, we do not yet know how social identity threats may influence consumers’ brand choices.

Bridging the gaps in the literature as described above, the current work elucidates a novel influence of social identity threats on brand reliance, or the degree to which consumers prefer branded over unbranded products or products without a well-known name brand like private or store brands (i.e., generic brands) (Shachar, Erdem, Cutright, and Fitzsimons 2010). We propose that experiencing a social identity threat reduces consumer’s self-worth and causes them to experience a discrepancy between their desired (positive) and current, threatened (negative) sense of self. This self-discrepancy should lead consumers to display...
heightened impression management motivation whereby they are motivated to strategically alter their behaviors to present themselves in a positive light to others (Leary and Kowalski 1990). As a result, social identity-threatened consumers are expected to engage in a form of compensatory consumption whereby they are more likely to purchase name (vs. generic brands) as a means of validating their self-worth to others. We also posit that this effect will only hold for consumers who have low levels of identification with the threatened social identity, for products that are consumed in public (vs. private) settings, and for consumers whose multiple social identities are not made salient to them.

In what follows, we develop a theoretical postulation for how social identity threat can increase brand reliance as a result of a reduction in self-worth and, thus, heightened impression management motivation. We also identify three important conditions that moderate the hypothesized effects. Finally, we present empirical evidence that supports our postulations.

**THEORETICAL BACKGROUND**

**Social Identity Threat and Consumer Behavior**

Social identity threats are situational predicaments where an individual’s social group is devalued by others (Tajfel and Turner 1986). Marketing researchers are increasingly becoming interested in studying the downstream consequences of group-based identity threats on consumer behavior. For example, White and Argo (2009) found that consumers with low (but not high) collective self-esteem exhibit lower preferences and choices for identity-linked products when that aspect of their social identity was threatened. Additionally, it has been shown that self-construal is an important moderating variable in determining whether consumers demonstrate associative or dissociative responses to identity-linked products as a result of social identity threat (White, Argo, and Sengupta 2012). Specifically, consumers with more independent (vs. interdependent) self-construals tend to avoid (vs. prefer) identity-relevant products when that social identity is threatened. The consequences of self-induced social identity threats have also been examined in a gift-giving context, whereby purchasing an identity-inconsistent gift for a close friend who is an integral part of the self has been shown to cause an identity threat to the giver (Ward and Broniarczyk 2011). As a result, these gift givers subsequently indicate greater purchase likelihood of identity-linked products as a means to reestablish their shaken identity. Finally, Dalton and Huang (2014) demonstrated that social identity threats have consequences for information processing, such that they can motivate consumers to forget identity-linked marketing promotions as part of a motivated forgetting psychological process.

Further, a growing body of work has examined the effects of stereotype threat, a form of social identity threat, on consumer judgment and decision making. Stereotype threat refers to the awareness that one may be viewed in congruence with a negative stereotype about one’s group (Steele and Aronson 1995). For instance, a group of researchers found that stereotype threat led consumers to be sensitive to whether service providers were in-group versus out-group members and decreased purchase intentions when the service provider belonged to an out-group (Lee, Kim, and Vohs 2011). In the financial decision making domain, Carr and Steele (2010) revealed that women who were subjected to stereotype threat displayed more loss-aversion and risk-aversion behaviors than both men and women who were not under stereotype threat. Overall, the literature demonstrates that social identity threats significantly influence a wide variety of decision contexts that are implicated by the threat, including consumer choice behavior, financial decision making, and information processing of marketing communications.

However, despite these recent advancements, there is a lack of research that examines how social identity threats may spill over to influence other domains besides the one in which the threat originated. For example, Lee, Kim, and Vohs (2011) studied how the stereotype threat of women being poor at math and relatively less knowledgeable about cars affected their purchase intentions of financial and automobile repair services, respectively, from outgroup (male) providers. However, one might ask where there are spillover effects on domains unrelated to the threat itself? For example, might the stereotype threat of women performing poorly in math affect women’s consumer choice behavior in contexts unrelated to math
proficiency? In addition, there is a lack of research on how social identity threat may influence brand choice. Specifically, how might social identity threat affect consumer’s preference for name or generic brands? Broadly, the current work aims to fill these gaps in the literature.

Social Identity Threat Increases Brand Reliance

According to social identity theory, individuals can and do define themselves in terms of the social groups to which they belong (Tajfel and Turner 1986). Accordingly, people derive much of their self-worth and sense of self through their group memberships (Turner and Onorato 1999). Threats that devalue or marginalize a group’s identity, as is the case with social identity threats, are highly aversive and hinder members’ self-esteem (Baumgardner 1990). As such, a social identity threat creates a discrepancy between the image a consumer would like others to hold of himself and the image others purportedly already hold. For example, exposure to threatening information that suggests that being a part of a religious group equates to being prejudiced and close-minded might hinder a religious consumer’s self-worth and force him to view himself as an unworthy person. Broadly, this would create a self-discrepancy between how he currently views himself (as a bad and worthless person) and how he wishes to see himself (as a good and worthy person). Consequently, drawing on the theory of impression management (Leary and Kowalski 1990), this discrepancy between one’s desired and current image should heighten one’s impression management motivation. Support for this prediction is partially derived from Braun and Wicklund’s (1989) work that demonstrated that university freshmen reported owning more university-branded clothing articles than did seniors at that university. Given that they were freshmen, they were not as secure in their standing at their university as they would prefer, giving rise to consumption (i.e., consuming university-branded attire) that could positively communicate their identity to others. Further support comes from Charles, Hurst, and Roussanov (2009) who showed that stigmatized socioeconomic and racial groups, who likely experience a discrepancy in how they wish to be viewed and how they are actually viewed by others, strategically consumed to be perceived as possessing higher status. To do so, they spent a larger share of their income on visible (vs. nonvisible) goods than did other social groups.

Building on the above reasoning, we propose that a downstream consequence of a decrease in consumer’s self-worth and, thus, an increase in their impression management motivation stemming from a social identity threat would be heightened brand reliance. A substantial body of research has documented that name brands can help consumers show a sense of self-worth to others (e.g., Aaker 1997; Berger and Heath 2007; Escalas and Bettman 2005). Name brands allow consumers to express that they are “meaningful, worthwhile beings, and deserving of good things in their lives” (Shachar, Erdem, Cutright, and Fitzsimons 2010, 95). As Shachar et al. (2010) find, name brands allow consumers to communicate their self-worth more than unbranded products or generic brands because (1) name-branded goods are usually perceived as possessing higher quality and prestige (e.g., Bagwell and Bernheim 1996), and (2) consumers who purchase unbranded products or generic brands are perceived as being “cheap” (Dick, Jain, and Richardson 1995). Taken together, we propagate that if a consumer’s social identity is threatened by other people, he would experience a decrease in his sense of self-worth and, as a result, an increase in impression management motivation to project to others his self-worth. As a means to communicate a sense of self-worth (i.e., that one is a meaningful and worthy individual), the consumer should be more likely to purchase name brands (vs. unbranded products or generic brands). Formally:

**H1:** Social identity threat increases consumer’s brand reliance (i.e., the purchase of name brands over unbranded products or generic brands).

**H2:** The relationship between social identity threat and brand reliance is sequentially mediated by self-worth and impression management motivation.
Qualifications

There are several factors that should impact the effect of social identity threat on brand reliance. In the current research, we look at the moderation effect of individual, product, and situational level constructs: identification with the threatened identity, whether the product is consumed in public (vs. private) settings, and the salience of the multiple identities of the consumer, respectively. First, the literature offers competing predictions on the effect of social identity threat on self-worth and, consequently, brand reliance. On the one hand, consumers who identify less strongly with a social identity are less likely to integrate that identity in their sense of self, and are thus less likely to feel significantly threatened when others devalue the given social identity (Ellemers, Spears, and Doosje 2002; Roberts 2005; Schmader 2002). As a result, their sense of self-worth is unlikely to be damaged when that part of their identity is maligned. On the other hand, there is substantial evidence that high group identification has the ability to act as a source of social support and self-esteem that buffers against the negative effect of identity threat on one’s self-worth (Branscombe, Schmitt, Harvey 1999; Cohen and Garcia 2005). Therefore, this line of work suggests that consumers who display low levels of identification with the target group would be likely to suffer negative effects to their self-worth in the face of social identity threat. These consumers do not enjoy the buffering-effects of identification with the target group and, thus, are more susceptible to experiencing a reduction in their sense of self-worth following threat. Siding with the latter theorization, we posit that social identity threat will significantly decrease the self-worth of consumers with low levels of group identification. Consequently, this will increase their impression management motivation to signal their self-worth to others and will result in heightened brand reliance as a means to do so. We come to this conclusion because these consumers do not enjoy the group identification that can provide them with social support and self-esteem that can buffer against the identity threat.

Second, whether the product is consumed in public (vs. private) context should moderate the proposed effects. We draw on research that has demonstrated the positive effect of public (vs. private) settings on prosocial behavior due to the opportunity to signal one’s positive qualities (e.g., Ariely, Bracha, and Meier 2009; Ashraf, Bandiera and Jack 2014). In relation to the current work, name-branded products are only able to signal one’s self-worth to others if they can be viewed by other people. If the product is consumed in settings void of social observability, such as how a razor or shampoo is consumed in the confines of one’s own home, then it does not have the potential to signal one’s self-worth to others. Consequently, we posit that if the product is perceived to be consumed in more private (vs. public) settings, then the effect of social identity threat on brand reliance should be attenuated.

Finally, it is important to note that almost all individuals are simultaneously members of many social groups. Self-complexity researchers have long demonstrated that multiple identities can provide beneficial effects in the face of social identity threat (Roccas and Brewer 2002). When a particular social identity is maligned, one can selectively rely on another group identity in order to try to reestablish a positive sense of self (Hogg and Abrams 1988). As follows, we posit that if a consumer’s possession of multiple identities, and not just the one that is currently under attack, is made salient, then that consumer is more likely to draw on other group identities as a means to protect his self-worth. Consequently, that consumer will be less likely to experience a decrease in self-worth and need to impression manage through consumption of name (vs. generic) brands.

H3: The effect of social identity threat on brand reliance will be attenuated (a) when the consumer is strongly identified with the social identity, (b) when the product is consumed in private (vs. public) settings, and (c) when the consumer’s multiple identities are made salient (vs. not).
METHODOLOGY

Our study was designed to provide a demonstration of the effect of social identity threat on brand reliance and the qualifying role of group identification. We expected that social identity threat would significantly increase brand reliance. Further, we expected that identification with the threatened identity would moderate this effect, such that threat only increases brand reliance for consumers with low (vs. high) levels of identification. To test these hypotheses, we used gender as the target identity to threaten and measured participants’ level of gender group identification and brand reliance.

Design and Method

Two-hundred and eight (109 men, \( M_{\text{age}} = 39.42, SD_{\text{age}} = 13.73 \)) participants completed this study on Amazon Mechanical Turk for a small monetary payment. The study was designed as a single factor (social identity threat: gender threat vs. no threat) between-subjects design. Participants were told that they would be responding to a few different sections of an overall larger study. They first answered basic demographic questions, including their gender. Then, they responded to a 4-item measure of gender identification on a 1 (strongly disagree) to 5 (strongly agree) scale (Schmader 2002): “Being a woman/man is an important part of my self-image”; “Being a woman/man is unimportant to my sense of what kind of person I am” (reverse-scored); “Being a woman/man is an important reflection of who I am”; and “Being a woman/man has very little to do with how I feel about myself.” These responses were averaged to form a gender identification composite (\( \alpha = .92 \)).

Next, participants were randomly assigned to either the gender identity threat or no threat condition. All participants were informed that they would read an excerpt of an article from a national magazine on recent research about workplace performance. Adapted from White and Argo (2009), participants in the gender identity threat condition read that their own gender demonstrates weak analytical reasoning skills, low levels of motivation in the workplace, a poorly developed sense of social intelligence, poor reliability in meeting important deadlines, and less leadership in group tasks. Conversely, participants in the no threat condition read that both genders perform equally as well in these areas.

After the manipulation, all participants imagined a hypothetical shopping scenario (adapted from Shachar, Erdem, Cutright, and Fitzsimons (2010)). They were instructed to “imagine that it is Saturday morning and you have decided to spend part of the day shopping online for several items that you need.” These items were a wallet, duffle bag, and watch. For each product, participants were given two choices (a name-branded or generic-branded alternative) that varied in price. The prices reflected realistic marketplace prices for these products, where the name-brand option was more expensive than the generic brand. For instance, for the watches, participants could either choose a Citizen watch at $125.00 or a Mossimo watch (Target brand) at $29.99. Participants indicated which option they would be most likely to buy for each product category. The dependent variable was the number of name-branded products they selected (ranging from 0 to 3).

Finally, as a manipulation check, participants responded to six items regarding how the excerpt from the article made them feel (i.e., unhappy, threatened, attacked, maligned, challenged, and impugned) on a 1 (not at all) to 7 (very much) scale. Responses were averaged to form a composite measure of social identity threat perception.

Results and Discussion

Manipulation Check. A one-way ANOVA revealed a significant effect of social identity threat on social identity threat perception (\( F(1, 204) = 84.47, p < .001 \)). As expected, social identity threat perception was significantly higher in the gender identity threat (vs. no threat) condition (\( M = 3.86, SD = 1.83 \) vs. \( M = 1.81, SD = 1.29 \)). Therefore, our manipulation of social identity threat was successful.
Brand Reliance. First, to ensure that the effect of our identity threat on brand reliance did not differ for men and women, we regressed brand reliance on social identity threat (1 = gender identity threat, 0 = no threat), gender identification, gender, all lower two-way interactions, and the three-way interaction between threat, gender identification, and gender. The results revealed a non-significant effect for the threat x gender identification x gender interaction (B = -.02, SE = .20, p = .92), confirming that our manipulation of identity threat does not produce a different pattern of results for men and women. Thus, we moved on to test our main hypotheses and chose to control for participant gender to tease out that effect on brand reliance. To do so, we regressed brand reliance on social identity threat (1 = gender identity threat, 0 = no threat), gender identification, and their interaction. Results revealed main effects of social identity threat (B = 1.24, SE = .63, p = .05) and gender identification (B = .14, SE = .07, p = .03), which were qualified by a marginal interaction (B = -.17, SE = .10, p = .07). As gender identification is a continuous measure, the analyses were repeated at 1 standard deviation below and above the mean (Aiken and West 1991). The analysis revealed a positive simple effect of social identity threat among individuals low in gender identification (B = .36, SE = .18, p = .05), such that they exhibited greater brand reliance in the threat (vs. no threat) condition. However, the effect of social identity threat on brand reliance was not significant for those with moderate (B = .13, SE = .13, p = .32) or high (B = -.10, SE = .18, p = .58) levels of gender identification.

Consistent with our predictions, these results reveal a main effect of social identity threat on brand reliance. Additionally, we find that group identification moderates this effect, such that social identity threat increases brand reliance for consumers with low (vs. high) levels of identification with their gender group. We theorize that this pattern of results emerge because consumers who are not identified with their gender group are not adequately buffered against the negative effect of social identity threat on their feelings of self-worth as their high identifier counterparts are. As a result, they are more motivated to impression manage to prove their self-worth to others, and they do this via being more likely to purchase name- (vs. generic) branded products.

GENERAL DISCUSSION

Thus far, we have conducted one study and found that social identity threat significantly increases brand reliance, or the extent to which consumers prefer name-branded products over unbranded or generic-branded products. We also gained evidence for the moderating role of identification with the threatened identity, such that social identity threat only increases brand reliance for consumers with low (vs. high) levels of group identification. Currently, we are running a study to gain evidence for our proposed psychological process underling our effects. Additionally, we plan to run further studies to test for the moderating roles of social observability of consumption of the product and the salience of consumer’s multiple social identities. We hypothesize that the positive effect of social identity on brand reliance will only hold for products that are consumed in public (vs. private) settings and when consumer’s multiple identities are not (vs. are) made salient to them.

Once complete, we expect our research to make a number of both theoretical and practical contributions. First and foremost, we add to the marketing literature on social identity threat by demonstrating that threats can produce spillover effects by affecting consumer decision making in contexts that are not directly implicated by the threat. Previous research only focused their investigation on the effects of social identity threat on identity-related products, whereas we extended this investigation and found that the effects of social identity threat are much more widespread than previously demonstrated. Second, we integrate the theories of social identity and impression management motivation to show that social identity threat leads to increased brand reliance by consumers as a means of signaling their self-worth to others. Third, we inform the growing line of inquiry on the importance and benefits of multiple social identities to individuals. Previous research has found that simply possessing multiple social identities can buffer against the negative effects of social identity threat to the self (e.g., Hogg and Abrams 1988; Roccas and Brewer 2002). However, we qualify this finding by showing that in certain circumstances, just possessing multiple social identities may not suffice in buffering against the negative effects of threat on
feelings of self-worth. Instead, consumers may need to be nudged to selectively rely on other identities to maintain feelings of self-worth in the face of threat by specifically making these other identities salient to the consumer. Finally, we make a contribution to the branding literature by highlighting a previously unexplored determinant of consumer preference for name (vs. generic) brands, social identity threat.

In terms of practical contributions, marketing managers of name-branded products that are generally consumed in public settings (such as clothes and accessories) can use this research by better predicting consumer demand and for whom they should specifically target in their marketing communications. In times of macro-level threats, such as when a country’s national identity or religious affiliation is maligned, then marketing managers should expect for consumer demand for name brands to increase as a way for these consumers to reestablish their sense of self-worth with others. In addition, these marketers should specifically focus on consumer segments who may experience various forms of social identity threat and, thus, would be more receptive to products that have the potential to reestablish their self-worth in the eyes of others. Public policy officials can also leverage our research in their marketing communications to threatened consumer groups by nudging these consumers to selectively draw on their other (non-threatened) multiple identities to protect their feelings of self-worth, thus likely reducing their desire to pursue more expensive, and often less functional, name-branded products.
REFERENCES


The distinction between attributes and benefits is at the heart of product development. Attributes represent the physical and psychological inputs that comprise a product for which consumers may or may not see an actual benefit. Some attributes are benefit enabling, in the sense that their presence signals the possibility that an offering can respond to some benefits being sought, while their absence indicates that the benefit is not present at all. For example, the attributes associated with a “luxury” automobile may be necessary for an automobile to be considered luxurious, while a “quiet ride” is not strictly necessary but could help if leather seats were already present. In other words, benefit formation may hinge on some attributes being present, while other attributes may only add to, or enhance, a benefit that has already been created.

The goal of the project is to develop a method to identify the benefit-creating attributes among a set of attributes that are thought to drive value for a product. Our work builds on recent research on benefit formation using conjoint analysis (Kim et al. 2017). The identification of benefit-creating attributes has implications for the development of products and the communication of their features to consumers.

INTRODUCTION

The value of a product comes from the perceived benefits that the product provides to consumers, not from the product’s attributes themselves. Once people think that several attributes are expected to provide the same benefit, the value of each attribute is likely to decrease in the presence of the others. Kim et al. (2017) provides evidence that consumers satiate on the attributes which are perceived to yield the same benefit. Knowing what attributes are related to the benefit, however, might be insufficient to understand consumer preference of a product. Consumers may be able to perceive benefits if a product includes an attribute which strongly signals a possibility to afford the benefits. If the product does not have this special attribute, consumers might think that they cannot get the benefit from the product even though other attributes, which enable to provide the same benefit once the perceived benefit is present, exist. In other words, attributes assigned into the same benefit could have different roles: the presence of some attributes, or benefit-creating attributes, lead to a benefit formation, while other attributes, called benefit-adding attributes, only can enhance the benefit that has already been created.

Consider, for example, a consumer who is planning to buy a digital camera described by the attributes “zoom”, “focus type”, “camera resolution”, “built-in flash” and “brand”. Suppose the consumer perceives only two benefits from the digital camera: “picture quality” and “brand”, wherein the first four attributes are all believed to provide the picture quality benefit. Suppose the consumer believe that he or she can obtain picture quality benefit if camera resolution is more than 7 MP (megapixels). That is, if a camera resolution is less than 7 MP, the consumer may consider the picture quality benefit is absent in that product. In this case, other attributes which enable to response to the picture quality will not be considered. Once the product has 7 MP in camera resolution feature, the consumer perceives the picture quality benefit and benefit-adding attributes are also effective as providing the same benefit by enhancing the benefit.

The goal of this paper is to develop a method to identify the benefit-creating attributes. Our model takes into account not only what attributes map into the benefit, but also which one among a set of attributes mapped into the same benefit is benefit-creating.

Many researches have taken into account the different effect of attributes on advertising (MacKenzie 1986), consumer preference (Lefkoff-hagius and Mason 1993), brand extensions (Bridges, Keller, and Sood 2000), and forming consideration set by screening rules (Gilbride and Allenby 2004). However, the different effect of attributes in creating a benefit has not been considered. The proposed model
is flexible to allow possible types of attributes (e.g., vertical or horizontal) to be considered as a possible benefit-creating attributes. Furthermore, the proposed model is to consider consumer heterogeneity in benefit-creating attributes by enabling consumers to have different benefit-creating attributes.

The findings can be useful for firm to understand consumers’ choice behaviors and accurately develop managerial strategies. In product development, company can figure out which attributes should not get rid of. Similarly, knowing benefit-creating attributes lead to reduce the burden to figure out which attributes should be mentioned in advertisements by informing consumers of an offering which can afford to provide the benefit.

**MODEL DEVELOPMENT**

The standard conjoint model assumes that consumer utility is additively separable in attributes (Green and Srinivasan 1978). This implies that each attribute is assumed to provide its own benefit, or part-worth. This model can be problematic if a consumer perceives that several attributes provide the same benefit, which violates additively separable assumption in attributes.

A benefit-based model for conjoint analysis (BBC) proposed recently by Kim et al. (2017) deals with how consumer utility is derived from benefits by considering attributes whose effect satiates within benefits. The paper identifies the presence of benefits by investigating diminishing marginal returns of multiple attributes which are expected to provide the same benefit. This study assumes that consumers can perceive benefits regardless of the role of attributes within benefits. However, consumers who believe a specific attribute is necessary to create a benefit being sought may end up thinking that a product without that attribute does not provide the benefit to them. In summary, the effect of attributes in utility depends on two things. First, the presence of other attributes within the benefit makes people satiate on attributes. Second, the presence of the benefit-creating attribute determines whether the effects of benefit-adding attributes become realistic or not. Therefore, considering the role of each attribute within the benefit is necessary to fully understand consumer’s choice behavior.

We relax the assumption that attributes which are expected to provide the same benefit is homogeneous in terms of signaling offerings to enable to provide the benefit. People do not take into account all attributes when they make a choice in some reasons (Gilbride and Allenby 2004). A challenge in modeling benefit formation is to identify the underlying structure of the role of attributes within benefits. Furthermore, assumptions for benefit formation might be different depending on the number of attribute levels (e.g., binary or multiple levels) and the type of attributes (e.g., ordinal or categorical attribute).

**Characteristic of benefit-creating attributes**

To understand a benefit formation determined by benefit-creating attributes, different attribute levels and types should be considered (table 1). Most products have both binary and multi-level attributes. Suppose a product has \( N \) attributes which are partitioned into \( K \) benefits. A binary attribute \( n \) is assigned into benefit \( k \) if \( \tau_n^* = k \). Each binary variable \( n \) is a benefit-creating attribute if \( \lambda_n = 1 \). For multi-levels of attribute \( n \), the assumption for an attribute-benefit mapping is different in terms of the type of attributes. All levels of ordinal attributes are assumed to be mapped into the same benefit, while all levels of categorical attributes do not necessarily provide the same benefit. In general, benefit \( k \) is only perceived if all benefit-creating attributes exist in a product. But in the case of multi-level attributes, attributes can provide the benefit if at least one of benefit-creating levels exists in the offering. That is, every level of any attribute is allowed to be a benefit-creating attribute.
Table 1 benefit formation based on attribute levels and types

<table>
<thead>
<tr>
<th>Attribute (levels)</th>
<th>Benefit formation (assumption)</th>
<th>Benefit assignment (τ)</th>
<th>Benefit creating (λ)</th>
<th>Benefit existence (φ)</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Binary level</td>
<td>an attribute is assigned into only one benefit at the individual level</td>
<td>( \tau_n^* \in {1,2,...,K} ) for ( n = 1,2,...,N )</td>
<td>( \lambda_n \sim Bern(\theta) )</td>
<td>all benefit-creating attributes should exist to create benefit k</td>
<td>build-in Flash</td>
</tr>
<tr>
<td>Multi-level</td>
<td>all levels should be mapped into the same benefit</td>
<td>( \tau_{n1}^* = \tau_{n2}^* = \cdots = \tau_{nM_n}^* = k )</td>
<td>( \lambda_{n1} \sim Bern(\theta) )</td>
<td>only one benefit-creating level of attribute n is necessary to create benefit k</td>
<td>Pixels</td>
</tr>
<tr>
<td>Categorical</td>
<td>levels can be mapped into different benefits</td>
<td>( \tau_{nl}^* = \tau_{nl'}^* = k )</td>
<td></td>
<td>independent</td>
<td>Brand</td>
</tr>
</tbody>
</table>

Consider a point and shoot camera again. Suppose a digital camera consists of 5 attributes, “zoom”, “camera resolution”, “focus type”, “brand” and “built-in flash”, wherein the first two attributes are multi-level ordinal attributes, next two are multi-level categorical attributes, and “built-in flash” is a binary attribute. Let’s assume that consumers perceive only two benefits from the digital camera: “brand”, which is a unique benefit, and “picture quality”, which four attributes except brand are all believed to afford. If the binary variable, built-in flash, is benefit-creating, a product without built-in flash cannot be perceived as providing the “picture quality” benefit. If camera resolution are two levels (e.g., 7MP and 12MP), the benefit-creating levels can be none of them, either of them, or both of them. In the case when both levels are a benefit-creating, they can either provide the same benefit or not. If both 7MP and 12 MP of a camera resolution provide “picture quality” benefit, people perceive the benefit from either a product with 7MP level or a product with 12MP level. That is, if more than two levels within the same attribute are a benefit-creating for the same benefit, any one level is necessary to create the benefit being thought.

This is realistic because a product has to have one level of an attribute, meaning the camera cannot have both 7MP and 12MP level of a camera resolution at the same time. However, all benefit-creating attributes should exist in a product to provide the benefit. For example, if 7MP of resolution, 12MP of resolution, and zoom are benefit-creating for picture clarity, the benefit is present only when both zoom and one of resolution level exist in offerings, otherwise the benefit is perceived as being absent.

A benefit formation model

Since we assume consumers derive utility from the benefits provided by its attributes, the BBC model is the overall structure retained in the current paper. There are several assumptions in investigating the choices based on the perceived benefits. First, benefits are mutually exclusive, meaning the part-worth function for a benefit is additively separable. Second, a priori attributes are linked into only one benefit at the individual level (see Kim et al. 2017). A difference between the BBC model and our model is that we relax the assumption that all attributes which provide the same benefit are exchangeable. Moreover, the BBC model is a special case of our proposed model in which there is no benefit-creating attribute in any benefit.

Suppose there is a product \( j \) with attribute \( N \). People partition the \( N \) attributes into \( K \) benefits \( (K \leq N) \). The utility of option \( j \) is the sum of the part-worth of benefits by the presence of benefit-creating attributes is modeled as a simple form:
\[ u_j = \sum_{k=1}^{K} \phi_k \cdot b_k(a_{jk1}, a_{jk2}, \ldots, a_{jkM_k}) + \epsilon_j, \]  

where \( \phi_k \) is an indicator which determines the presence of benefit \( k \) based on the presence of benefit-creating attributes within benefit \( k \), \( b_k \) is the part-worth function for benefit \( k \), \( a_{jkm} \) is the value of the \( m \)-th attribute of alternative \( j \) in benefit \( k \), and \( M_k \) is the number of the attributes that belong to benefit \( k \). The benefit formation can then be interpreted as a partitioning behavior: consumers partition the \( N \) attributes into \( K \) mutually exclusive benefits. Kim et al.’s (2017) BBC model specifies the part-worth function \( (b_k) \) considering that consumers satiate on multiple attributes within a benefit, which identifies the presence of benefits.

\[ b_k(a_{jk1}, a_{jk2}, \ldots, a_{jkM_k}) = g \left( \sum_{m=1}^{M_k} g^{-1}(a_{jkm}) \right), \]  

where

\[ g(a) = \text{sgn}(a)\log(|a| + 1) = \begin{cases} \log(a + 1), & \text{for } a \geq 0, \\ -\log(-a + 1), & \text{for } a < 0, \end{cases} \]  

Since our proposed model is built on BBC model, we use the same benefit function in (2) and (3).

The benefit indicator \( \phi_k \) in equation (1) plays an important role in determining the presence of perceived benefit based on the presence of benefit-creating attributes related to benefit \( k \) exist in product \( j \), meaning consumers get a signal that they can get benefit \( k \). On the other hand, \( \phi_k \) equals 0 if benefit-creating attributes are not in product \( j \), meaning consumers cannot get a perceived benefit \( k \) through the product. If consumers are indifferent in attributes which create the same benefits, all \( \phi_k \) equals 1 implying BBC model is a special case of our model. To understand a benefit formation specifically, we first deal with products whose attributes are all binary level.

**Binary level**

Consumer utility of product \( j \) is formed as below:

\[ u_j = \sum_{n=1}^{N} \tau_{n0} \cdot x_{jn} \beta_n + \sum_{k=1}^{K} \phi_k \cdot g_k \left( \sum_{n=1}^{N} \tau_{nk} \cdot g^{-1}(x_{jn} \beta_n) \right) + \epsilon_j, \]

where \( \phi_k = \prod_{n=1}^{N} (I(x_{jn} \geq 0))^\lambda_n \tau_{nk} \),

where \( x_{jn} \) is a value of attribute \( n \) for option \( j \), \( \beta_n \) is a part-worth for levels of attribute \( n \), \( \tau_{nk} \) is a binary variable which represents that attribute \( n \) is assigned into benefit \( k \) if \( \tau_{nk} = 1 \), and \( \phi_k \) represents an auxiliary variable that determines the presence of benefit \( k \) in product \( j \). Consumer utility consists of two parts: null group of unique attributes on the left side, benefit \( k \) group of multiple attributes on the right side. If an attribute is perceived as unique, it provides a benefit by itself. In terms of \( \phi_k \), \( \lambda_n \) is a binary variable which determines whether attribute \( n \) is benefit-creating or not. \( \tau_{nk} \) denotes whether attribute \( n \) is mapped into the benefit \( k \). Therefore, \( \lambda_n \tau_{nk} \) identifies whether attribute \( n \) is a benefit enabling in benefit \( k \). \( \lambda_n \tau_{nk} \) equals 1 if attribute \( n \) creates benefit \( k \), otherwise 0. Once consumers have a benefit-creating attribute \( n \) in creating
benefit \( k \), the product \( j \) has to have the attribute to be perceived as providing benefit \( k \). \( I(x_{jn} \geq 0) \) represents the presence of attribute \( n \) in product \( j \), wherein \( \{I(x_{jn} \geq 0)\}^{x_{nk}} \) equals \( 1 \) if the product \( j \) has benefit-creating attribute \( n \) in benefit \( k \). Therefore, \( \phi_k \) equals \( 1 \) only if product \( j \) has all benefit-creating attribute \( n \) in benefit \( k \).

**Multi-level**

Product features usually have both binary and multi-level attributes. In this case, it is problematic if more than two levels within attribute \( n \) are mapped into the same benefit with the binary level model. \( \phi_k \) in equation (4) indicates that part-worth of benefit \( k \) is effective in consumer’s utility only if product \( j \) has *all* benefit-creating attribute levels related to benefit \( k \). However, if more than two levels of an attribute \( n \) are expected to provide the same benefit, the \( \phi_k \) are likely to be zero since products may not have multi-level of the attribute simultaneously. For example, a digital camera generally does not have two brands unless it is made by a collaboration of two companies.

A solution could be to assume consumers can perceive benefit \( k \) once one of multiple benefit-creating levels related to the same benefit exists in product \( j \). If ‘Canon’ and ‘Nikon’ are supposed to afford ‘professional’ benefit, a consumer can perceive this benefit when he or she consider either ‘Canon’ camera or ‘Nikon’ camera.

Consumer utility for product \( j \) with multi-level attributes can be expressed as

\[
 u_j = \sum_{n=1}^{N} \tau_{n0} \cdot x_{jn}^{l} \beta_{n} + \sum_{k=1}^{K} \phi_k \cdot g_k \left( \sum_{n=1}^{N} \tau_{nk} \cdot g^{-1}(x_{jn} \beta_{n}) \right) + \epsilon_j,
\]

where \( \phi_k = \prod_{n=1}^{N} BC_n \),

where \( BC_n = I \left( \sum_{l=1}^{L_n} I(x_{jnl} \geq 1) \cdot \psi_{nl} = M_n \right) \)

\[
 \psi_{nl} = \lambda_{nl} \cdot \tau_{nlk} = \begin{cases} 1 & \text{if } \lambda_{nl} \cdot \tau_{nlk} = 1 \\ 0 & \text{otherwise} \end{cases}
\]

\[
 M_n = \begin{cases} 1 & \text{if at least one benefit creating exists in attribute } n \\ 0 & \text{otherwise} \end{cases}
\]

The difference between the binary (2.1.1) and multi-level model (2.1.2) is \( \phi_k \). First, it is similar that the product \( j \) should have all benefit-creating attribute, \( BC_n \), to make perceived benefit \( k \) have an impact on consumer’s utility. If more than two levels i) are benefit-creating within attribute \( n \) and ii) create the same benefit \( k \), the benefit \( k \) can be perceived by product \( j \) which has one of those benefit-creating levels. That is, multi-level attribute \( n \) is a benefit-creating if at least one of levels of its attribute affords the perceived benefit \( k \). \( \sum_{l=1}^{L_n} I(x_{jnl} \geq 1) \cdot \psi_{nl} \) in \( BC_n \) indicates whether attribute \( n \) has a level \( l \) which creates a benefit \( k \). \( L_n \) denotes the number of levels in attribute \( n \). This term cannot have a value over \( 1 \) since product \( j \) has only one of levels of attribute \( n \). In other words, \( x_{jnl} \), a value of level in attribute \( n \) for
option $j$, is usually specified with dummy variable coding. In this sense, only one level equals 1, whereas other levels in attribute $n$ equal 0. Therefore, $(\sum_{l=1}^{L_n} I(x_{jnl} \geq 1) \cdot \psi_{nl})$ term in $BC_n$ represents whether attribute $n$ in product $j$ has one of levels which provides the same benefit $k$. $\psi_{nl}$ identifies whether level $l$ in attribute $n$ is a benefit enabling in benefit $k$. $M_n$ represents whether attribute $n$ has benefit-creating level or not. There are two cases if $\left( \sum_{l=1}^{L_n} I(x_{jnl} \geq 1) \cdot \psi_{nl} \right) = 0$. First, the term can be zero if product $j$ does not have any level which is a benefit-creating in attribute $n$. On the other hand, the term can be zero if any level of attribute $n$ is not engaged in benefit formation, meaning all levels in attribute $n$ are benefit-adding ($\lambda_n$ is null vector). In this case, $BC_n$ should be 1 so that it does not hurt making the effect of benefit $k$ by benefit-creating attributes. For example, if attribute $n$ is a benefit-creating, $\left( \sum_{l=1}^{L_n} I(x_{jnl} \geq 1) \cdot \psi_{nl} \right)$ term becomes zero and $BC_n = 1$ due to $M_n = 0$. In contrast, if attribute $n$ is a benefit-creating and product $j$ does not have the attribute, $BC_n = 0$ due to $\left( \sum_{l=1}^{L_n} I(x_{jnl} \geq 1) \cdot \psi_{nl} \right) = 0$ and $M_n = 1$.

**Final proposed model**

This is the final form modeling individual $h$’s utility for option $j$ in task $t$ as is follows:

$$u_{hjt} = \sum_{n=1}^{N} \tau_{hn0} \cdot x'_{hjnt} \beta_{hn} + \sum_{k=1}^{K} \phi_{hjtk} \cdot g_k \left( \sum_{n=1}^{N} \tau_{hkn} \cdot g^{-1}(x'_{hjnt} \beta_{hn}) \right) + \epsilon_{hjt}$$

where $\phi_{hjtk} = \prod_{n=1}^{N} I\left( \sum_{l=1}^{L_n} I(x_{hjnl} \geq 1) \cdot \psi_{nl} = M_n \right)$ (7)

Since $\phi_k$ for multi-level attributes in equation (6) embeds the case when option $j$ has binary attributes, we use it for our final version of the model. This model deals with all products with diverse attribute types and levels.

**Heterogeneity**

Consumers are likely to partition attributes into benefits differently. Similarly, consumers may differ in having several attributes which create different benefits. Therefore, we allow attribute-benefit mapping variable, $\tau^*$, and benefit-creating attribute, $\lambda_n$, to be heterogeneous across respondents in a conjoint analysis as below:

$$\tau^*_{hn} \sim Multinomial_{K+1}(\theta_{n0}, \theta_{n1}, \ldots, \theta_{nK}),$$

$$\lambda_{hn} \sim Bernoulli(\gamma_n),$$ (8)

where $\theta_{nk}$ denotes the probability of assigning attribute $n$ into benefit $k$, $\gamma_n$ indicates the probability of attribute $n$ being a benefit-creating one.

We assume that the part-worth parameters can be heterogeneous across respondents as well (see Allenby and Ginter 1995).
\[ \beta_h = [\beta_{h1} \beta'_{h1} \cdots \beta'_{hN}]' \sim N(\bar{\beta}, \Sigma). \] (9)

Details of our estimation algorithm is provided in the Appendix.

**SIMULATION STUDY**

A simulation study is conducted to investigate the ability to recover model parameters including benefit-creating attributes. We use the conjoint experiment design from digital camera dataset previously used by Allenby et al. (2014) to generate synthetic choice data: four alternatives and an outside option with 6 variables with 16 choice tasks. We use the model for generating data which is the same as equation (4) since all attributes in camera dataset are binary variables. The true number of benefits is set to 1, i.e., \( K = 1 \).

Our generated data set has 100 individuals and 160 observations per individual. In the original conjoint design, 6 camera attributes are pixels, zoom, video, swivel screen, and WiFi respectively. We set that the probability of attribute 3 being a benefit-creating attribute is 0.9, meaning attribute 3 (A3) is highly likely to be a benefit-creating attribute. We also set all attributes except attribute 6 (A6) is mapped into benefit 1 (\( K = 1 \)), meaning the effect of attributes mapped into benefit 1 satiates on the presence of other attributes. We ran 20,000 MCMC iterations and the first 5,000 iterations are dropped as a burn-in period. The last 15,000 draws are used for estimating the model parameters. Table 2 shows that the true values are well recovered. Figure 1 and 2 show the trace plot of the posterior draws for estimated parameters.

Table 2 Posterior estimates of part-worth, benefit-creating, and the assignment probabilities

<table>
<thead>
<tr>
<th>Variable</th>
<th>Part-worth(( \beta ))</th>
<th>Benefit-creating probabilities(( \gamma ))</th>
<th>The assignment probabilities(( \theta ))</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>True value</td>
<td>Estimates</td>
<td>True value</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A1</td>
<td>1.5</td>
<td>1.48 (0.07)</td>
<td>0.1</td>
</tr>
<tr>
<td>A2</td>
<td>1.2</td>
<td>1.17 (0.09)</td>
<td>0.1</td>
</tr>
<tr>
<td>A3</td>
<td>0.5</td>
<td>0.55 (0.08)</td>
<td>0.9</td>
</tr>
<tr>
<td>A4</td>
<td>1.3</td>
<td>1.33 (0.08)</td>
<td>0.1</td>
</tr>
<tr>
<td>A5</td>
<td>1.4</td>
<td>1.33 (0.08)</td>
<td>0.1</td>
</tr>
<tr>
<td>A6</td>
<td>-0.5</td>
<td>-0.51 (0.05)</td>
<td>0.1</td>
</tr>
</tbody>
</table>

*Posterior standard deviations are given in parentheses ( ).

*Numbers in boldface represent that the 95% credential interval contains the true value.
Figure 1: Trace plots of the MCMC draws for the part-worth of attributes when $K=1$

Figure 2: Trace plots of the MCMC draws for the benefit-creating probabilities when $K=1$
Next Steps

We are currently conducting empirical applications by applying our proposed model to real dataset. After empirical applications, we plan to discuss policy implications and limitations of the paper.
REFERENCES


Appendix. Estimation Algorithm

The proposed model used in the empirical analysis is as follows:

\[ u_{ht} = \sum_{n=1}^{N} \tau_{hn0} \cdot x'_{hn} \beta_{hn} + \sum_{k=1}^{K} \phi_{h(tk)} \cdot g_k \left( \sum_{n=1}^{N} \tau_{hnk} \cdot g^{-1}(x'_{hn} \beta_{hn}) \right) + \epsilon_{ht}, \]

where \( \phi_{h(tk)} = \prod_{k=1}^{K} I(\sum_{n=1}^{N} I(x_{hn} \geq 1) \cdot \psi_{nl}) = M_n \),
\[ g(y) = \text{sgn}(y) \log(|y| + 1). \]

Let \( z_{ht} \) denote the response of individual \( h \) to choose task \( t \), which has 1 if option \( j \) is chosen, 0 otherwise. Then the likelihood is

\[ \mathcal{L}_h(\beta_h, \{\tau_{hn}^*, \phi_{hk}\}|z_{ht}) = \prod_{t=1}^{T} \prod_{j=1}^{J} \prod_{k=1}^{K} \exp \left( \frac{\ell_h(\beta_h, \{\tau_{hn}^*, \phi_{hk}\})}{\mathcal{L}_h(\beta_h, \{\tau_{hn}^*, \phi_{hk}\})} \right) \]

where \( \mathcal{L}_h(\beta_h, \{\tau_{hn}^*, \phi_{hk}\}) = u_{ht} - \epsilon_{ht}. \)

Step 1. Set initial values for all variables to be inferred: \( \beta_h, \{\tau_{hn}^*\}, \tilde{\beta}, V_\beta, \{\theta_{hk}\}, \{\lambda_{hn}\} \), and \( \{\gamma_n\}. \)

Step 2. Generate \( \beta_h \) for \( h = 1, 2, \cdots, H \) given \( \{\tau_{hn}^*\}, \{\phi_{hk}\}, \tilde{\beta}, V_\beta \) via the random-walk Metropolis-Hastings algorithm:

(a) Draw candidate \( \beta_{hn} \sim N(\beta_{hn}^{old}, d^2 \cdot V_\beta) \). In RWMH algorithm, \( \beta_{hn}^{old} \) is the previous value of \( \beta_h \) and \( d \) is the step size.

(b) Accept \( \beta_{hn}^{new} \) with following probability:

\[ \text{Pr(accept)} = \min \left[ 1, \frac{\ell_h(\beta_{hn}^{new}, \{\tau_{hn}^*, \phi_{hk}\})|z_{ht})}{\ell_h(\beta_{hn}^{old}, \{\tau_{hn}^*, \phi_{hk}\})|z_{ht})} \right] \cdot f(\beta_{hn}^{new} | \tilde{\beta}, V_\beta) \]

where \( f \left( \cdot | \tilde{\beta}, V_\beta \right) \) is the density of the normal distribution with mean \( \tilde{\beta} \) and variance \( V_\beta \).

Step 3. Generate \( \tau_{hn}^*|\tau_{h,-n}, \beta_h, \{\theta_{hk}\}, \{\phi_{hk}\} \) via posterior multinomial distribution.

\( \tau_{hn}^*|\tau_{h,-n}, \beta_h, \{\theta_{hk}\}, \{\phi_{hk}\} \sim \text{Multinomial}_{K+1}(\bar{\theta}_{n0}, \bar{\theta}_{n1}, \cdots, \bar{\theta}_{nk}) \)

where

\[ \bar{\theta}_{nk} = \frac{\ell_h(\beta_h, \tau_{hn}^* = k, \tau_{h,-n}, \{\phi_{hk}\}) \cdot \theta_{nk}}{\sum_{k'=0}^{K} \ell_h(\beta_h, \tau_{hn}^* = k', \tau_{h,-n}, \{\phi_{hk}\}) \cdot \theta_{nk'}}. \]

Step 4. Generate \( \{\lambda_{hn}\} \) for \( n = 1, 2, \cdots, N \), \( l = 1, \cdots, L_n \), and \( h = 1, 2, \cdots, H \) given \( \lambda_{h,-n}, \beta_h, \{\tau_{hn}^*\} \), and \( \{\gamma_n\} \) via the following posterior Bernoulli distribution:

\( \lambda_{hn} | \lambda_{h,-n}, \beta_h, \{\tau_{hn}^*\}, \{\gamma_n\} \sim \text{Bernoulli}(\tilde{\gamma}_{nl}). \)

where

\[ \tilde{\gamma}_{nl} = \frac{\ell_h(\beta_h, \{\tau_{hn}^*\}, \{\phi_{hk}|\lambda_{hn} = 1, \lambda_{h,-n}\}) \cdot \gamma_{nl}}{\ell_h(\beta_h, \{\tau_{hn}^*\}, \{\phi_{hk}|\lambda_{hn} = 1, \lambda_{h,-n}\}) \cdot \gamma_{nl} + \ell_h(\beta_h, \{\tau_{hn}^*\}, \{\phi_{hk}|\lambda_{hn} = 0, \lambda_{h,-n}\}) \cdot (1 - \gamma_{nl})}. \]
Step 5. Generate \( \{\gamma_{nl}\} \) given \( \{\lambda_{hn}\} \) via the following posterior beta distribution:

\[
\{\gamma_{nl}\} \sim \text{Beta} \left( \sum_{h=1}^{H} \lambda_{hnl} + \alpha, H - \sum_{h=1}^{H} \lambda_{hnl} + \beta \right)
\]

(set \( \alpha = \beta = 2 \))

Step 6. Generate \( \bar{\beta} \) and \( V_{\beta} \) given \( \{\beta_h\} \) via the following Bayesian multivariate regression (Rossi et al. 2005):

\[
\beta_h = \bar{\beta} + \zeta_h, \quad \zeta_h \sim N(0, V_{\beta}).
\]

The prior distributions are \( \bar{\beta} | V_{\beta} \sim N(0, 100 \cdot V_{\beta}) \) and \( V_{\beta} \sim \text{IW}(nvar + 3, (nvar + 3) \cdot I_{nvar}) \), where \( nvar \) denotes the number of the individual parameters.

Step 7. Generate \( \{\theta_{hk}\} \) given \( \tau_{hn}^* \) via the following posterior Dirichlet distribution:

\[
\theta_{n0}, \theta_{n1}, \ldots, \theta_{nK} \sim \text{Dirichlet} \left( \eta_{n0} + \sum_{h=1}^{H} \tau_{hn0}, \eta_{n1} + \sum_{h=1}^{H} \tau_{hn1}, \ldots, \eta_{nk} + \sum_{h=1}^{H} \tau_{hnk} \right).
\]

where \( \eta_{nk} \) is the prior, \( \eta_{nk} = 3 \) for all \( n = 1, 2, \ldots, N \) and \( k = 1, 2, \ldots, K \) in our analysis. With the order restriction, we use an ordered Dirichlet distribution to avoid labeling switching problem in estimating the assignment probabilities (see Lenk and DeSarbo (2000) for the approach of generating the ordered Dirichlet distribution).

Step 8. Repeat step 2 through 7 at each iteration of the MCMC.
WHEN NOSTALGIC ADVERTISING BACKFIRES: UNDERSTANDING THE ROLE OF YOUTHFULNESS IN NOSTALGIC ADVERTISING

Young K. Kim, University of Iowa
Mark Y. Yim, University of Massachusetts-Lowell

INTRODUCTION

Much prior research has reported that advertising/marketing campaigns that generate nostalgic feelings result in more positive consumer responses including attitudes towards the ad and the brand featured in the ad (Muehling 2013), and greater intentions to purchase the advertised brand (Zhao, Muehling, and Kareklas 2014). It has been known that effective nostalgic triggers that result in these positive evaluations are related to nostalgia’s self-continuity by building bridges between people’s fond memories of the past when they were young and their current selves (Wildschut et al. 2006). Given that nostalgia refers to “one’s favorable affect towards events, experiences, or objects when one was younger” (Holbrook and Schindler 1991, p. 330), it is believed that youthfulness plays an important role in generating positive evaluations of nostalgic advertising. Consistent with this idea, a very recent psychology study revealed that nostalgia makes people feel younger than their current age (Abeyta and Routledge 2016).

In spite of much positive evidence about the impact of nostalgic-themed marketing communications, the current study debates the limitations of adopting this approach in advertising contexts that focus on the role of nostalgia in increasing feelings of youthfulness. According to the researchers in feminist gerontology, in a society where women’s youthfulness is often equated with physical attractiveness or body shape, the loss of a youthful attractiveness provides unique challenges, such as body dissatisfaction, low self-esteem, and depression, especially for older women who are more socialized concerned with their appearances than older men (Bartky 1990). Thus, it appears that responses to nostalgic advertising may be different by age and gender groups. Such elaborated analysis of the effectiveness of nostalgia by age and gender will enrich our understanding in this research domain and guide advertisers/marketers to be more target-specific in maximizing the effectiveness of using nostalgic advertising. To achieve these goals, two studies are conducted. A pretest of this idea is achieved by using ANOVA to test the three-way interaction effect of age, gender, and nostalgia on youthfulness by having participants engage in narrative writing tasks. After empirically confirming this theoretical relationship in the pretest, main study replicates it in the advertising context to increase the external validity of our findings and identify practical implications.

THEORETICAL FOUNDATION

Nostalgia and youthfulness

Previous research has shown that the content of nostalgic memories tends to involve childhood or adolescent experiences, which connect individuals with their younger self (Wildschut et al. 2006). By echoing this finding, other studies have similarly shown that participants who recalled a nostalgic event from their past reported a higher level of perceived continuity between their past-individual self and present-individual self (e.g., Sedikides et al. 2008, 2015).

By extending and testing this idea, Abeyta and Routledge (2016) obtained direct empirical support that nostalgia makes people feel younger and helps them maintain a youthful view of the self. Specifically, when asked to bring to mind and write about either a nostalgic or an ordinary event, nostalgic participants tended to report more youthful events than control participants (Abeyta and Routledge 2016). However, this finding carries one critical limitation in that the effect of nostalgia on youthfulness was significant only for older people. This occurs mainly because younger people feel youthful in general since they are, in fact, young (Abeyta and Routledge 2016). In short, nostalgia can make people perceive youthfulness, but this effect is limited to older people.
The next section discusses why gender is another critical factor that should be considered in understanding the impact of nostalgia on people’s perceived youthfulness.

**How gender moderates the effect of nostalgia on older adults’ youthfulness**

In modern consumer society, the loss of a youthful appearance is particularly damaging to older women because of the society’s obsession with women’s physical beauty and youthfulness (Wilcox 1997). Indeed, aging women are judged more harshly than aging men on the basis of their ability to maintain necessary characteristics for women’s beauty, such as the absence of wrinkles and a thin and firm body shape (Bartky 1990). The interactive effect of aging and gender reveals how the effect of aging varies by gender (Deutsch et al. 1986). Women gain status and value mainly from their physical beauty, whereas men gain status and value from a broader range of qualities, such as strength and personality (Wilcox 1997).

This background leads us to being skeptical about the recently confirmed hypothesis that nostalgia brings a sense of youthfulness to both genders of older people equally. Nostalgia promotes self-continuity between the present self and the past self by stimulating a stronger sense of younger self (Sedikides et al. 2015; Wildschut et al. 2006). Yet, older women would be more likely to avoid a sense of continuity between past and present selves than older men mainly because nostalgia reminds them of the physical changes of aging (Wilcox 1997) that are caused from the self-discrepancy of body images between past and current selves (e.g., changed body shape, wrinkles). Because this discrepancy cannot be easily solved with any reasonable amount of effort, it tends to activate coping strategy to avoid, withdraw, or escape (Duhachek 2005), while leading to experiences of negative emotions. As a result, nostalgia does not work as a trigger that increases older women’s sense of younger self. By the same logic, younger women who felt nostalgic would be able to connect themselves to the past self to experience a positive memory effect without any concern about perceived aging.

As such, nostalgia can generate both positive and negative emotions, depending on motivational and situational factors. Many prior research found that the content of nostalgic narratives is more positive than negative (Wildschut et al. 2006; Zhou et al. 2012). For example, Zhou et al. (2012) used an autobiographical writing task to measure both positive and negative emotions, but found no evidence that nostalgia increases negative emotion. Yet, individuals might view nostalgia as an unhappy experience if the memories involve longing for past experiences or relationships that were negative. Similarly, nostalgia might involve comparing an ideal-self to an actual or less than ideal present-self which could increase feelings of discontent and even lower self-esteem (Verplanken 2012).

This discussion enables us to predict a three-way interaction of nostalgia, age, and gender on perceived youthfulness. Specifically, it is expected that gender plays a moderating role in the effectiveness of nostalgia on older adults’ but not younger adults’ perceived youthfulness. We therefore hypothesize that:

**H1a:** When a nostalgic feeling is induced, older women will feel less youthful than older men.

**H1b:** For younger adults, a nostalgic feeling will not affect their perceived youthfulness, regardless of gender.

**PRETEST OF THE THEORETICAL BASE: H1**

**Method**

To test our proposed hypothesis, we conducted an online survey using an online panel recruited via Amazon’s Mechanical Turk (MTurk) in exchange for $0.40 per respondent. This enabled us to obtain responses from a broad range of consumer age groups with a balanced gender representation. We limited population from which the sample was drawn to the U.S. resulting in a total of 196 respondents, consisting
of 98 younger participants aged 18-25 years (58.2% males, $M = 22.35$, $SD = 2.03$) and another 98 older participants aged 49-67 years (41.8% males, $M = 55.70$, $SD = 4.39$).

We employed a 2 (emotion type: control versus nostalgia) x 2 (age group: younger versus older) x 2 (gender: female versus male) between-subject experimental design. The independent variables were dummy coded (age group: 0 = younger, 1 = older; gender: 0 = female, 1 = male; emotion type = 0 = control, 1 = nostalgia). Participants were randomly assigned to one of two conditions (i.e., nostalgia versus control) while each cell out of eight had an equivalent sample size.

In the experimental treatment condition, we induced nostalgia with a form of manipulation introduced by Wildschut et al. (2006) and Zhou et al. (2012). Specifically, participants were instructed to bring to mind a nostalgic (versus ordinary) event in their life and write down four keywords associated with the corresponding event and reflect briefly on the event and their feelings. Following this, they completed questions to test the manipulation (Wildschut et al. 2006) consisting of three items: “right now, I am feeling quite nostalgic,” “right now, I am having nostalgic feelings,” and “I feel nostalgic at the moment.” Responses to all three items were averaged together to create a nostalgia index ($\alpha = .99$). Participants then responded to the following question that measured their perceived youthfulness: “how youthful are you feeling now?” (Abeyta and Routledge 2016) ($M = 4.10$, $SD = 1.57$). All the measurement tools employed a seven-point scale.

Results

The results showed that as intended, participants in the nostalgia condition ($M = 5.75$, $SD = 1.26$) reported significantly more nostalgic feeling than did those in the control condition ($M = 3.21$, $SD = 1.88$, $F(1, 194) = 123.58$, $p < .001$), showing that our manipulation was successful.

A 2 x 2 x 2 analysis of variance (ANOVA) using SPSS 24.0 was conducted to test our proposed hypothesis. The results revealed a significant three-way interaction effect on perceived youthfulness ($F(1, 188) = 6.76$, $p < .05$) (see Fig. 1). When a nostalgic feeling is induced in the treatment condition, older female participants were less likely to feel youthful ($M = 3.53$) than were older male participants ($M = 4.37$; $t(47) = 2.10$, $p < .05$). However, for older adults in the control condition there was no significant difference in perceived youthfulness by gender ($M_{female} = 4.00$ vs. $M_{male} = 3.50$; $t(47) = 1.06$; n.s.). Moreover, among younger participants females did not show any significant differences from males (all $p$’s > .20). Thus, H1 is supported.

**Fig. 1. Pretest: Effect of age, gender, and emotion type on perceived youthfulness**

<table>
<thead>
<tr>
<th>A. Older</th>
<th>B. Younger</th>
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<td></td>
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</table>
MAIN STUDY: REPLICATING TEST OF H1 IN THE ADVERTISING CONTEXT

The results of the pretest showed that nostalgia inducement results in older women experiencing a less youthful feeling than older men, while nostalgia does not generate any such difference in youthful feeling among younger participants. To substantiate this experimental finding in an applied context, we replicated H1 in an advertising context. Importantly, we also aimed to shed direct light on the underlying mechanism that explains how differently nostalgic feelings affect each group of consumers. Replicating H1, we hypothesize that:

**H2a:** When a nostalgic ad is viewed, older women will feel less youthful than older men.

**H2b:** For younger adults, the nostalgic ad will equally affect their perceived youthfulness of the gender.

**Mediating role of self-discrepancy in body image**

To identify the underlying psychological mechanism by which nostalgia affects older women’s perceived youthfulness, we examined whether the interaction effect of nostalgia and gender on youthfulness is mediated by older women’s changed self-perceptions of body image, which represents a symbol of youthfulness.

It is believed that among older adults, nostalgia is interpreted differently by each gender. For older men, nostalgia concretely connects their current self to who they were in the past so that they tend to pay attention to their beautiful and memorable time back then (Sedikides et al. 2008). In contrast, for older women, nostalgia that is linked to the memory about their past awakens the sense of the effect of time change between then and now, resulting in the changes in body image perception, which eventually makes them feel older (e.g., aged body, gaining weight) (Wilcox 1997).

Consistent with this idea, a great deal of literature on body attitudes among older men and women have proposed that older women tend to be more concerned about the effects of aging on their body image (Furstenberg 1989). For example, previous research found that over 60% of female aged 60-70 years old and nearly 80% of 54-year-old females reported body dissatisfaction (McLaren and Kuh 2004) because of the age-related changes in their bodies. Higgins’ (1987) self-discrepancy theory similarly asserts that as an individual perceives a greater degree to which the current self-concept (e.g., current body image) deviates from the important comparison standard (e.g., ideal body image), self-discrepancies occur resulting in diverse negative consumer responses, such as lowered self-esteem, depression, and disappointment (Strauman and Higgins 1988).

Therefore, we propose that the interaction between nostalgia and gender is mediated by self-discrepancy and that, in turn, self-discrepancy results in youthfulness for older adults, while no such mediated moderation effect is expected for younger adults because nostalgia’s effect on youthfulness does not differ by gender. We therefore hypothesize that:

**H3a:** For older adults, the interaction effect of nostalgia and gender on youthfulness will be mediated by self-discrepancy between current and ideal body image.

**H3b:** For younger adults, the self-discrepancy in body image will not play a mediating role in that relationship.

Youthfulness is a universal value that most adults in our modern society desire to achieve, regardless of the age and what culture group to which they belong (Barak and Stern 1986). Sociologically and psychologically, aging contains negative implications, such as inactive, non-productive, undesirable,
and unhealthy; accordingly, people have a tendency to resist and/or deny aging and wish to look younger than their biological age, as much inner-age research has revealed (Greco 1989). As such, we also predict that youthfulness perceived from an ad will generate a more positive emotional response (e.g., happy, satisfied).

**H4:** The greater the feeling of youthfulness generated by an ad, the more positive the emotional response will be.

According to affect transfer models of persuasion (Mackenzie et al. 1986; Zajonc 1980), the affect produced at the time of ad exposure is expected to be transferred to the ad viewers and significantly influence their evaluations. Consistent with this idea, prior research has provided considerable support for the relationship between ad-evoked emotional responses and consumers’ attitudes toward the ad (Stayman and Aaker 1988). Thus, we predict that:

**H5:** The more positive the emotional response generated by an ad, the more positive will be the attitude toward the ad.

**Method**

We recruited 96 U.S. participants in the younger age ranged from 18 to 25 years old (50% males, $M_{age} = 22.95, SD_{age} = 1.86$) and another 91 older U.S. participants in the older age range from 50 to 75 years old (47.3% males, $M_{age} = 57.55, SD_{age} = 5.86$) using Amazon’s Mturk to take part in exchange for $0.40 each.

As in the pretest, the same study structure of a 2 (ad type: nostalgia versus control) x 2 (age group: younger versus older) x 2 (gender: female versus male) between-subject design was used in the main study. Only the manipulated context of nostalgia given to participants was changed.

For our treatment manipulation, two experimenter-generated print ads for a fictitious brand of digital camera named **FALSON** were developed. Both ads contained an identical visual element of silhouettes of both female and male adults jumping into water. Only the slogan wording differed. The nostalgic ad (treatment) contained a slogan saying “Return to your memories of the past,” whereas the non-nostalgic ad (control) contained a “Enjoy today! Capture the moment for the future” (See Appendix A).

To test the success of the manipulation, participants completed the three manipulation check items ($\alpha = .98$) and were asked to indicate their perceived youthfulness as in the pretest (Abeyta and Routledge 2016). Additionally, using semantic differential scales we measured their emotional state (unhappy-happy, depressed-cheerful, gloomy-uplifted, and unsatisfied-satisfied; $\alpha = .93$) (Aylesworth and MacKenzie 1998) and their attitudes toward the ad (unfavorable-favorable, bad-good, and negative-positive; $\alpha = .97$) (Mitchell and Olson 1981). To assess self-discrepancy between current and ideal body image, they were asked to identify the body image that most closely approximated their figures both before (current body image) and after (ideal body image) they were exposed to the prepared ad in each condition. To this end, the Figure Rating Scale (Stunkard et al. 1983) was used. It includes a set of nine figure drawings numbered from 1, representing extremely thin to 9, representing extremely heavy.

**Results**

The manipulation test showed that participants who viewed the nostalgic ad reported feeling more nostalgic ($M = 4.15, SD = 1.66$) that did those who viewed the non-nostalgic ad ($M = 3.49, SD = 1.83, F(1, 185) = 6.58, p < .05$).
An ANOVA test of the effect of nostalgia, gender and age on perceived youthfulness revealed a significant three-way interaction \( (F(1, 179) = 9.51, p < .01) \) (see Fig. 2). As we predicted, when the nostalgic ad was viewed, older female participants were significantly less likely to feel youthful \((M = 3.40)\) than older male participants \((M = 4.48; t(44) = 2.94, p < .01)\) but no such gender difference was found for younger adults \((M_{male} = 4.46, M_{female} = 4.00; t(46) = .98, n.s.)\), supporting H2a and H2b. When the non-nostalgic ad was viewed, there was no significant gender difference in perceived youthfulness for older adults \((M_{female} = 3.87 \text{ vs. } M_{male} = 3.82; t(43) = .13; n.s.)\). Interestingly, when younger adults viewed the non-nostalgic ad, male participants felt significantly more youthful \((M = 5.25)\) than did female participants \((M = 3.42; t(46) = 4.80, p < .001)\), unlike in the pretest. These different results may have been caused by the different manipulation approaches. Participants in the control condition of the pretest felt an ordinary emotional response through their own writing that described their ordinary life. Yet, participants in the main study has been manipulated through a non-nostalgic ad that contained silhouette images of thin models. Therefore, it seems plausible that the thin models created additional effects on each gender’s responses; males felt more youthful from the energetic image in the ad, whereas females felt less youthful from others’ thin body.

**Fig. 2. Main Study: Effect of age, gender, and ad type on perceived youthfulness**

To test H3-H5, a structural equation modeling approach was specified (see Fig. 3). Data from the same quota sample of older and younger adults was used to empirically test the model. H3 proposed that the interaction between nostalgia and gender is mediated by self-discrepancy in body image in explaining a feeling of youthfulness. Two identical models were specified for multi-group tests: one group being older and the other younger adults. Both showed good fit (older: \( \chi^2 (37) = 82.47, p < .001, \chi^2/df = 2.23, \text{CFI} = .93, \text{NNFI} = .90, \text{RMSEA} = .12 \); younger: \( \chi^2 (37) = 59.48, p < .001, \chi^2/df = 1.61, \text{CFI} = .96, \text{NNFI} = .94, \text{RMSEA} = .08 \)).
The mediated moderation effect of self-discrepancy in body image on the relationship between the interaction effect of ‘age x gender’ and youthfulness was tested separately using the sample groups of older and younger adults (Baron and Kenny 1986). The interaction effect of ‘age x gender’ on youthfulness was found to be significant in both the sample groups of older and younger adults (older: $F (1, 87) = 4.38, p < .05$; younger: $F (1, 92) = 5.21, p < .05$). The mediated moderation effect was examined by adopting the significance of the indirect effect of self-discrepancy by performing bootstrapped analysis (Bollen and Stine 1992) based on $n = 1,000$ at the 95% confidence level using bias-corrected intervals. The results revealed that in the sample of the older adults, the statistical path depicting the indirect effect of the interaction term on youthfulness (interaction → self-discrepancy → youthfulness) was significant ($\beta = .08, p < .05$). Yet, no such indirect effect was found for younger adults ($\beta = .02, n.s.$). Thus, we conclude that the significant mediating role of self-discrepancy functions only for the older adults, supporting H3a and H3b.

As for the linear relationship of youthfulness, emotion, and attitudes toward ad, we found evidence that increases in the feeling of perceived youthfulness significantly make more positive emotion ($\beta_{\text{older}} = .22, p < .05; \beta_{\text{younger}} = .45, p < .001$), in turn resulting in improved attitudes toward the ad ($\beta_{\text{older}} = .79, p < .001; \beta_{\text{younger}} = .83, p < .001$), supporting H4 and H5.

**DISCUSSION**

In both studies, we examined how each group of consumers based on age and gender responds differently to the effect of nostalgia on perceive youthfulness as the basis for determining the overall advertising effectiveness. Our results are both consistent with and elaborate more the findings in the existing literature. Specifically, it was found that younger adults are not significantly influenced by nostalgia-induced youthfulness because they are actually young, which is consistent with previous findings (Abeyta and Routledge 2016; Rubin and Berntsen 2006). However, we elaborated on previous findings by proposing that nostalgia generates youthfulness since nostalgia plays a role as a bridge that connects the self in the past to the present (Wildschut et al. 2006). In this study that prediction was observed only for the group of older male adults who are less susceptible to perceived changes in body images (Wilcox 1997). Conversely, when older female adults feel nostalgic, they tend to feel less youthful than older male adults. Importantly, our mediated moderation analysis revealed the underlying psychological mechanism explaining how these
differences in older adults’ perceived youthfulness were due to self-discrepancy between current and ideal body image. Finally, our findings also showed that nostalgic feelings decrease older women’s perceived youthfulness, and in turn evokes more negative feelings, resulting in unfavorable attitudes toward the ad, since feeling old is associated with diverse negative implications, particularly for older female adults (e.g., Greco 1989).

Through these studies we have made several significant contributions to the literature from both theoretical and practical perspectives. From a theoretical perspective, the primary contribution of the current study is that we provided evidence that there are age and gender effects to be accounted for in considering the effects of nostalgic advertising on consumer evaluations. Recently, Abeyta and Routledge (2016) found that nostalgia generally makes older adults feel more youthful. However, their study has some limitations in that their findings were identified based on general samples (ages ranged 18-62) without any specific observations on the influence of age (older versus younger) and gender. We elaborated that gender moderates the effect of nostalgia on older adults’ perceived youthfulness. In addition, we revealed an underlying psychological mechanism explaining how the nostalgia effect occurs by showing that self-discrepancy between current and ideal body images differently motivates the effect of nostalgic-themed advertising by age and gender; older female adults who perceive significant self-discrepancies in body image tend to negatively respond to nostalgic-themed advertising.

Another unique contribution of this study is that this research is the first of its kind to empirically support the fact that nostalgia can produce negative emotions, resulting in negative advertising effectiveness, unlike the existing literature in this domain of nostalgic advertising. Research to date has shown that people typically experience positive emotional reactions to nostalgia. For example, though nostalgic memories include both positive and negative emotional themes, these narratives tend to follow a redemption sequence that converts negative progress to positive (Wildschut et al. 2006). Consistent with this idea, it was also found that nostalgic narratives tend to include a lot of optimistic thinking, compared to non-nostalgic narratives (Cheung et al. 2013). However, our findings showed that nostalgic advertising can evoke older women’s negative emotions by increasing the self-discrepancy between the current and ideal body image.

Theoretical insights gained from this research also include practical implications. We suggest that the use of nostalgic-themed advertising campaigns should not yield universally beneficial results without considering the two important demographic factors of the target consumers, age and gender. In particular, this research indicates that nostalgia may negatively influence older females’ emotions and even attitudes toward an ad if nostalgia functions as a cue that makes the consumers realize that their present selves are far away from the past selves with a focus on the changes over time. Thus, brand managers should be cautious when using nostalgic tactics that might make older women feel even older, which in turn negatively influences their responses to the nostalgic-themed advertising campaigns. As an alternative format of ads, images of plus-sized models could be used to soften the possible self-discrepancy between current and past body images, resulting in positive consumer evaluations (Yim et al. 2016).

LIMITATIONS AND FUTURE RESEARCH

Although we make several significant contributions in this study, it is not immune from some limitations. In our research, we only recruited younger (aged 18-25 years) and older (aged 49-75 years) participants, and thus, one important question is still unanswered; what would we expect to find in a middle-aged group? We expect that both middle-aged and older women will be less likely to feel youthful than younger women because of their age-related changes in their bodies (Wilcox 1997). To warrant our speculation, we encourage future researchers to empirically test it based on a wider range of samples. Future research also would assess how individuals’ past experiences with a brand influence perceived youthfulness and advertising outcomes when nostalgic themes are used. Even though we created print ads for a fictitious brand to remove potential confounding effects created by the use of real brands, it would be useful to investigate how consumers might respond to a nostalgic-themed marketing campaigns for a personally...
experienced brand. Such an investigation may be particularly helpful for marketers to determine whether
nostalgic tactics are beneficial to a nostalgic brand or product.
REFERENCES


Appendix A. Stimuli

a. Nostalgia

Return to your Memories of the Past

b. Control

Enjoy Today! Capture the Moment for the Future
A THEORETICAL FRAMEWORK FOR STUDYING THE IMPACT OF OUTDOOR ATMOSPHERICS IN RETAILING

Peter Bloch and Omid Kamran-Disfani, University of Missouri-Columbia

ABSTRACT

The design of retail stores is critical to attracting customers and maintaining the financial health of the firm. Over the years, research on retail design or atmospherics has been almost completely focused on store interiors. This research shortfall is unfortunate given the increasing focus of savvy retail managers on brand building and the creation of sustainable competitive advantage through store architecture, outdoor lifestyle centers, and urban shopping districts. In order to stimulate research in this important topic area, we synthesize literature from a number of domains and provide a conceptual framework that examines the impact of outdoor atmospherics on shoppers’ psychological and behavioral responses. After presentation of this framework and accompanying propositions, contributions to theory and implications for practice are discussed. Finally, potential avenues for future research are suggested.

INTRODUCTION

“Remarkably, few marketing studies have looked beyond the door of the store, to assess the consequences of streetscape character and shopper response.” (Wolf 2005a, p.396)

Firms today are increasingly aware of the importance of design and aesthetics in the enhancement of their competitive position and fulfillment of their marketing objectives (Schiuma 2011). Marketing managers productively employ design in various domains, including advertising, products, websites, and retail stores. In retailing, architecture is one aspect of design that has particular relevance because store design is critical to the attraction and retention of customers. As Bonn et al. (2007) noted, retail design enhances brand meaning and perceptions of uniqueness in the minds of consumers, thus creating a competitive advantage.

Architectural design has always been critical in drawing people to locations of all kinds. Craftsmen and their patrons spent decades building awe-inspiring temples, tombs, and cathedrals that still attract crowds, centuries after their construction. Superior architecture has also drawn consumers to shopping areas for thousands of years as in the case of Trajan’s Markets in Rome, and more recently, the Montmartre district in Paris, the Ginza in Tokyo, and Rodeo Drive in Southern California. Today’s marketing landscape is no different as retailers try to create appealing store designs in order to maintain shopper traffic in the wake of increased Internet shopping.

In line with recent views in the marketing and retailing literature (e.g. Puccinelli et al. 2009; Grewal et al. 2009), shopping may be viewed as an experience, not just the fulfillment of a need. As Puccinelli et al. (2009) noted, atmospherics are one of the most important strategic domains that influence customer experience. By employing effective design, retail managers have the opportunity to impact these experiences and create a pleasurable atmosphere that encourages shopping trips to physical outlets rather than online shopping.

Design effects in retailing have been studied extensively using environmental psychology theory (Baker et al. 2002; Eroglu and Machleit 1990; Michon et al. 2005). Kotler (1973) was the first to use the term atmospherics which he defined as “the effort to design buying environments to produce specific emotional effects in the buyer that enhance his purchase probability” (p. 50). Retailers employ overall design, materials, color, lighting, music, and scent to influence shoppers and gain competitive advantage (Turley and Milliman, 2000; Eroglu and Machleit 2008). In a retail environment marked by ever-increasing competition, it is very hard for firms to differentiate themselves based on price reductions or other
promotional tactics. This has led retailers to explore atmospheres as a determinant of store choice. A store with appealing atmospheres is expected to better differentiate itself from competitors and attract customers.

In discussing the nature of atmospheres, Berman and Evans (1998) noted that store exteriors represent an important component. The store exterior includes the storefront, entrances, display windows, physical characteristics of the building (e.g. height and size), surrounding area, and parking. Retail firms spend large sums on real estate to secure an attractive setting and invest additional resources in store architecture. Several scholars have also argued that store exteriors and environmental variables create a key first impression and significantly influence consumers desire to visit and enter (Eroglu and Machleit 2008; Turley and Milliman 2000). Despite the obvious relevance of exterior design and setting, the marketing literature has essentially overlooked these variables. The few studies that have explored exterior design (see Table 1) have focused on only one architectural element, store windows.

Table 1 about Here

Given the increasing relevance of exterior design, there is a need for a comprehensive theoretical framework to guide future research on the impact of outdoor atmospheres on consumers and on marketing strategy. Our goal here is to provide such a framework and explore an under-researched aspect of retail atmospheres. We hope to guide researchers in positioning future studies, and to stimulate thinking on outdoor atmospheres by scholars, marketers and architectural design professionals. As such, the following research objectives guide the development of our framework:

1. Explore the design elements of outdoor store architecture and how these elements interact with the larger context of retail centers and surrounding areas.
2. Examine psychological and behavioral responses to outdoor atmospheres among consumers.
3. Identify individual differences and situational variables as moderators of these responses
4. Discuss implications for retail management and city planners, followed by suggestions for future study

THEORETICAL BACKGROUND

Three theoretical perspectives were helpful both in developing our framework and in supporting our argument on the importance of outdoor atmospheres. These perspectives were the approach-avoidance model, Cue Utilization Theory, and Retail Capability Systems perspective.

The approach-avoidance model has been widely used in studies pertaining to human interaction with the environment (Mehrabian and Russell 1974). According to this model, the effects of the physical environment on human behavior are mediated by consumer’s psychological response (pleasantness, arousal and dominance). Based on the valence of these reactions, consumers choose whether to approach or avoid an environment (Bitner 1992). This model suggests that outdoor atmospheres will have a significant impact on shoppers in a retail setting. Appealing store architecture and an external shopping environment that provides positive feelings such as safety and relaxation are likely to increase the probability of approach activities. These stimuli influence a shopper well before he or she is affected by in-store factors. In order for a customer to buy a product, s/he must approach and enter the retail store. Outdoor atmospheres will
direct this initial approach or avoidance tendency. We utilize this model as a foundation for our conceptual framework and expand on it to fit the stated objectives of our research.

*Cue utilization theory* (Olson and Jacoby 1972) is another theoretical domain with relevance to outdoor atmospherics. According to this theory, customers are faced with an array of cues when trying to accomplish a goal (e.g., buying a product). Initially, during the cue acquisition phase, consumers look for environmental cues that will help them make predictions and inferences about the task in hand. For example, when shopping for products, consumers make associations between available cues and the quality of a product they intend to buy. All cues are not weighted equally in consumer’s decision making. In other words, cues have different predictive values in the minds of consumers, and there are individual differences in the predictive values assigned to cues by different consumers (Richardson et al. 1994).

Various constituent elements of outdoor atmospherics can serve as cues in forming consumer perceptions about a store and its offerings. In fact, outdoor atmospherics are likely to be the first environmental cues that consumers perceive, thus influencing initial decisions such as whether to enter a store (Lange et al. 2016; Edwards and Shackley 1992; Sen, Block and Chandran 2002). Moreover, cues derived from the exterior environment communicate a retailer’s image before any in-store cues can affect consumer judgments. (Cornelius et al. 2010).

Finally, *retail capability systems perspective* (Obeng et al. 2015) suggests that while foundational capabilities such as brand management are necessary for retailers to remain competitive, supportive capabilities such as atmospheric design also can provide substantial benefits. Combinations of foundational and supportive capabilities that are hard to imitate by rivals are useful in developing competitive advantage. Obeng et al. (2015) argued that atmospheric design is a key supportive capability that has a strong interrelationship with the foundational capability of retail brand management. These capabilities together form the retail brand management system that plays a pivotal role in competitive advantage and success.

**CONCEPTUAL FRAMEWORK**

A framework for the study of outdoor atmospherics is shown in Figure 1. This framework is sequential and is based on environmental psychology theories and in particular, the approach/avoidance structure of Mehrabian and Russell (Bitner 1992; Bloch 1995; Mehrabian and Russell 1974). We draw upon theory relating to atmospherics as well as that developed in fields such as art, city planning, and forestry. The goal here is to provide a more systematic approach to the study of outdoor atmospherics and to facilitate the undertaking of future empirical work. Following presentation of the framework and associated propositions, several implications for retail management are proposed and promising avenues for future research are described.

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Figure 1 about Here

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**OUTDOOR ATMOSPHERICS**

The first element to be discussed here reflects the exterior stimuli that influence shoppers: outdoor atmospherics. Baker, Berry and Parasuraman (1988) argued that atmospherics are comprised of three components. The *design* component reflects functional and aesthetic elements such as floor plan, materials, architectural style, and size. The *ambient* component is centered on background stimuli such as the lighting, scent, and sounds. Over the years, researchers have examined the impact of music in a retail store (Brüner 1990; Milliman 1986) while others have investigated how lighting affects shopper behavior (Hidayetoglu, 2010).
Yildirim, and Akalin 2012; Milliman 1982). The third component is social and focuses on the retail staff and buyers in the store. For example, crowding has been shown to influence patronage tendencies (Michon, Chebat, and Turley 2005; Whiting and Nakos 2008). A high level of crowding may be a positive for a rock concert, or sporting event while it would be negative for a fast food counter or grocery store. This social component also relates to the nature of the people observed in a retail space. Similarity to the visitor, attractiveness, and perceived friendliness all may influence consumer responses (Rogers and Bhowmik 1970).

**Definition 1:** *Outdoor atmospherics:* the exterior characteristics of a retail space and its setting that influence customers’ desire to visit and patronize that retail space.

In our framework, outdoor atmospherics are divided into two interrelated subcategories: store location which captures the neighborhood or community that surrounds a retail store and second, store architecture which includes those elements connected to the exterior design of the store (Berman and Evans 1998). These two categories are interconnected and the order of emphasis may vary.

In some cases, the location may be of primary importance to the retail manager and the consumer. That is, management wants to locate the store in a particular area, street, or shopping neighborhood. Neighborhood attractiveness may be based on traffic and sales expectations, aesthetics, or appeal to the target market. Based on this location preference, store design will follow and be subject to several constraints. In an urban neighborhood or shopping street, store architecture will have to conform to size limits, signage rules, and architectural review by city planners (Winter 2003). In other words, the retailer’s control of outdoor atmospherics is limited by the constraints of the setting.

In other cases, management has a vision for a specific form of store architecture. In this case, the setting and location are chosen to fit the architectural needs of the individual store. For example, a flagship store will be sited so to allow the scale and impact desired by the firm (Nierobisch et al. 2017). Many retailers want to create an immersive brand environment (Foster 2015; Napoli et al., 2014; Munoz et al., 2006). Therefore, in designing a store, architects are charged with translating the brand image into the retail environment. (Kozinets et al., 2002). The brand message and merchandise sold dictate the design of the interior and exterior retail atmosphere (Foster 2015). There also may be another goal of keeping design consistency across individual outlets to further reinforce the brand. In this case, store design drive location. In addition to brand reinforcement, retailers may focus on other marketing goals. One goal, especially for small independent retailers, may be differentiation and awareness creation. When outdoor atmospherics distinguish a store from competitors, consumer awareness and recall are enhanced (Foster 2015). A desire for differentiation may lead to appropriate decisions in both store design and retail location.

As shown in the framework, retail and communication objectives such as brand building, sales volume, adherence to a theme, and awareness creation drive both store design and its siting within a larger shopping context. The relevant importance of these two atmospheric elements is also an outgrowth of retailers’ goals.

**P1:** Retail objectives and constraints determine the nature and relative importance of store location and exterior design. Store location and exterior design influence each other.

**Location and surrounding environment**

In considering outdoor atmospherics, the broadest element is the environment surrounding the particular store. Here the focus is on store location within a retail district and surrounding neighborhood. As noted above, a retailer’s desire to be located in a specific area may have considerable impact on the exterior design of the individual store. Retail architects may have to work around a number of geographic, construction, and regulatory constraints. Teller and Reutterer (2008) argued that although the marketing literature is replete with studies on shopping behavior in a specific store, empirical research on consumer
shopping behavior in shopping streets and larger settings is scarce. De Nisco and Warnaby (2014) noted that the appeal of a shopping district is not only important for individual stores, but for urban revitalization projects as well. Characteristics comprising this aspect of outdoor atmospherics are discussed in the sections below.

**Definition 2: Surrounding Environment:** One component of outdoor atmospherics is comprised of characteristics relating to the location and surroundings of a retail store. These characteristics include: neighborhood richness, walkability, foliage, enclosure, imageability, and ambience.

**Neighborhood Richness:** Today’s consumers are attracted to shopping locations that offer a varied mix of businesses (Kaufman 2015). Returning to the traditional urban model, there is an increasing appeal to shopping areas that are close to services, residences, tourist destinations, restaurants, and workplaces. Wakefield and Baker (1998) found that tenant variety influenced shoppers’ feelings of excitement and the desire to remain in a shopping area. Visual design complexity in a location also may vary and is determined by the number of buildings, their architectural diversity, range of colors, and landscape elements (Ewing and Handy 2009). High complexity shopping areas provide a wealth of engaging elements to keep consumers on site for longer periods. The architecture characterizing a shopping district can provide this complexity as do the people present in the space, signs, and lighting. Complexity is also connected to the information load of a setting (Malhotra 1982). People tend to have an optimal load level with this sweet spot varying across individuals. Too much or too little sensory stimulation can be aversive. Great shopping venues will provide an optimum blend for a target group of shoppers.

**Walkability:** The extent to which a shopping environment supports and encourages walking is an increasingly important characteristic. A walkable shopping area offers a significant proportion of its space reserved for pedestrians and successfully provides for their comfort and safety, it connects people with a range of destinations within a reasonable amount of time, and offers visual interest during the walk (Southworth 2005). Retailers, urban planners, environmentalists, and health care professionals all speak to the benefits of walkable settings. According to Southworth (2005), a walkable setting offers several important attributes, including linkage to mass transit, perceived safety, visual interest, high quality pathways, easy of crossing streets, a coherent network, and appealing landscape elements. Today, retail locations that offer walkable spaces are highly prized by shoppers (Blum 2006).

In the late 19th century, the Picturesque movement emphasized the aesthetic experience of walking in the design of new residential areas. These areas offered a rewarding landscape of both built and natural forms that engaged walkers and facilitated their movements (Southworth 2005). This approach to residential neighborhood design has enjoyed some resurgence. In New Urbanist developments, walkability and traditional architecture are emphasized (Audirac 1999). The appeal of walkability applies to in retail settings equally well as it does to residential neighborhoods.

**Foliage and Trees:** The presence of trees is another important aspect of outdoor retail surroundings. Wolf (2005a) examined consumers’ psychological response to the existence of tree-lined shopping districts. She found that shoppers consistently preferred shopping districts with trees. Going further, shoppers judged products and stores more positively in settings with trees, and were willing to pay more for products sold in those retail environments. Other researchers also confirm the appeal of urban forests (Chenowith and Gobster 1990; Lohr et al. 2004; Sheets and Manzer 1991). With trees, shoppers even rate the maintenance and visual quality of stores as being higher than in settings without trees even in the absence of objective differences (Wolf 2005a). As retailers and urban planners work to maintain healthy shopping districts, streetscape trees may play an important role.
**Enclosure:** The degree to which shopping streets are visually defined by buildings, walls, and other vertical elements contributes to perceptions of enclosure (Amell et al. 2015). Some spaces where the vertical elements are related to the width of the space can provide a room-like feel to visitors. Alexander et al. (1977) suggested that pleasing outdoor spaces have a definite shape and the buildings become the walls of the outdoor room, the street and sidewalks represent the floor, and in some cases the sky reads as a ceiling. According to these authors, the total width of a street, from façade to façade, should not exceed building heights in order to maintain a comfortable feeling of enclosure. Other scholars have offered more lenient proportions of 1:2 or more (Jacobs 1993).

**Imageability:** Many of the characteristics noted above contribute to the overall imageability of a shopping environment. Amell et al. (2015) defined imageability as the quality of a place that makes it distinct, recognizable, and memorable. A shopping environment has high imageability when its physical elements and their arrangement capture attention, evoke affective responses, and create a lasting impression. When all the characteristics of a shopping environment work together to create a pleasing, memorable experience, there is positive imageability. Ewing and Handy (2009) posited that imageability is affected by a number of variables including: landscape features, the number of people present, the number of historic buildings, the presence of parks and courtyards, the availability of outdoor dining, and the preponderance of non-rectangular building shapes.

**Ambient Factors:** Baker and her colleagues (Baker et al. 2002) identified ambient factors as one component of atmospherics. In an interior setting, such factors would include lighting, music and background scents. The exterior of a shopping area also includes ambient factors that may affect consumer appeal. Sounds coming from the bustle of crowds or music from outdoor street musicians may add excitement to a shopping area and attract customers. On the other hand, loud transit noises may have a negative effect. Comfortable lighting filtered through a canopy of trees or awnings might be a positive feature while harsh sunlight would reduce the appeal of the setting. At night, appropriate lighting will have a strong place in outdoor atmospherics. On the Las Vegas Strip or in New York’s Times Square, nighttime lighting provides a substantial draw to locals and tourists alike. Scent is another ambient element that can be part of an outdoor shopping scene (Davies, Kooijman, and Ward 2003). Flowers and food vendors can beckon to consumers while fumes from buses may detract from the area’s appeal.

**P2:** Consumer responses are positively influenced by:

- The complexity and visual richness of a retail location. This relationship is curvilinear with moderate complexity being most preferred.
- The walkability of a retail location.
- The presence of trees and other foliage in a retail location.
- Perceptions of enclosure in a retail location.
- The level of imageability of a retail location.
- Ambient characteristics of retail location influence consumer responses.

**Elements of store architecture**

The other component of outdoor atmospherics is the exterior architecture of the individual store and that of its enclosing center or development. At the store level, retail management may have considerable control over design decisions. In the context of the shopping center or multi-store building, retailers may yield much of their design control to developers and landlords. Each retailer will have to work within the design constraints imposed by the developer of the larger building space.

The design or architecture of a store is a major influence on its attractiveness to shoppers. According to Reinartz and Kumar (1999), store attractiveness is a multi-faceted construct comprised of a number of elements that managers can manipulate. Our attention is on the characteristics of the building
exterior. These characteristics relate to the formal aesthetics of building and its basic structure (Nasar 1994). These variables also relate to symbolic aesthetics and the content or meaning that is delivered to observers through design.

*Store architecture* includes a number of elements that together have an impact on customers and others in sensory range. In some cases, store exterior is designed from a clean sheet of paper and in others it represents a modification of an existing structure or a part within a larger center. Architects make choices regarding size, scale, surface materials, color, entrances, display windows, exterior signage, and landscaping (Mower et al. 2012; Turley and Milliman 2000). These professionals also make choices regarding the overall style of the building and which design idiom it follows. The overall look of the store exterior must also take into account corporate identity issues and neighborhood fit.

**Definition 3:** *Exterior store architecture: Second component of outdoor atmospherics and is comprised of characteristics relating to the building in which a store is housed. Control of these characteristics may be at the individual retailer or developer level. These characteristics include: building size/scale, architectural style, building age, building complexity, color, signage, windows/transparency, entrances, lighting, and immediate landscaping.*

*Size and scale:* The height and size of a building strongly influences its impact on people (Altman and Chemers 1980). Today, consumers are particularly drawn to large stores (Uberti 2014). The benefits of size in the goal of impressing shoppers may have limits, however. Extremely large buildings can exceed what is termed human scale. This scale is connected to the size and proportions of people and coordinates with the speed at which people walk (Amell et al. 2015). With large stores, architects must skillfully design entrances and windows to prevent overwhelming visitors. Architecture that is large, monolithic, and ignores human scale is called brutalist architecture (Banham 2011).

*Architectural Style, Age and Complexity:* Architecture often may be categorized into a general style. Numerous styles exist including Mission Revival, Classical, Gothic, Mid-century Modern, Bauhaus, and Colonial, among many others. Each style provides meaning to visitors either through the design principles employed or through experience with similarly styled structures. Some studies report that popular styles are preferred over avant-garde styles (Stamps and Nasar 1997), whereas others find the reverse (Stamps 1993). Curved lines and ornateness have also been found to boost preferences (Frewald 1990; Gifford et al. 2000). The fit of a store’s architecture with other buildings in the area is another design characteristic of interest here. Having a distinctive design compared to neighboring stores may provide attention but detract from the harmony of the overall shopping area. Thus, distinctiveness of architectural style must be employed with some care.

In retailing, a common style variation is based on the perceived age of the building. A number of studies have demonstrated that older building styles are preferred over new styles (Herzog and Shier 2000). Reasons for this preference include greater height, visual richness, mystery, use of natural materials, and distinctiveness (Frewald 1990; Herzog and Shier 2000). More complex buildings also tend to be preferred, but the preference is stronger for older buildings. The expansion of complexity in modern buildings should be approached with caution, however.

*Color:* Color is central to design and affects the meaning that individuals draw from a stimulus (Lebrecque, Patrick, and Milne 2013). It also has the potential to affect mood and emotional state (Evans 2002). In a complex setting, color distinguishes structures and objects from their environment (Arnheim 1998). Color may attract, gain attention, and differentiate competitors. This variable is also important symbolically since color shapes the environment and influences perceptions of space, ambiance, and overall image (Kopec 2006). Color affects responses through past experiences and connections to nature, such as
a gas station with a strong green color evoking sentiments about growing plants and environmental friendliness.

Retailing scholars have shown that color draws attention and that warmer tones are the most arousing (Bellizzi, Crowley, and Hasty 1983). Cooler colors tend to be more relaxing and produce less arousal (Lebrecque et al. 2013). Also, people tend to be warm- or cool-color dominant, i.e., more sensitive to colors at the warm or cold end of the spectrum. (Bellizzi and Hite 1992) studied the effect of warm and cool colors on consumer feelings and purchase likelihood. Based on an approach-avoidance scale, consumers seemed to prefer shopping in a cool setting, where they felt more comfortable and at ease.

**Signage and Marquees:** Signs have long been part of retail architecture. They can have both positive and negative effects on observers. If poorly designed and lacking in coherence, signs provide unwelcome visual pollution. If used effectively, signs may add charm to a setting and help guide movements (Nasar and Hong 1999). Theaters have always used their lighted marquees as a central element of their outdoor atmospherics. A century ago, stores painted their exterior brick walls with massive signs that are still visible in their faded patina today (Stage 1989). Signs are also critical to consumers’ ability to identify a retail store. For example, the classic department stores of Center City Philadelphia were located close together and offered similar architectural styles. It was exterior signage that directed shoppers to Wanamakers, Gimbel’s, or Snellenburg’s (Sullivan 2012). In some cases, signage may be so prominent that it affects overall store attractiveness.

**Windows and Transparency:** As a consumer approaches a store, windows become increasingly important. They are critical in attracting visitors to a store. Windows also affect architectural transparency which captures the degree to which people can see what lies beyond the edge of a building. A window wall at ground level allows maximum transparency. Preferences for transparency stem from a desire to observe human activity beyond the edge of a building or street. A store with display windows that invite passers-by to look in, see around a corner, and then come in to shop offer high transparency. Blank walls and reflective glass reduce transparency. Salt Lake City, Utah requires 60 percent transparent glass at the pedestrian level throughout the Central Business District because of the psychological comfort afforded by ground-level transparency (Amell et al. 2015).

Windows are a key component of outdoor atmospherics. They often provide a key first impression about the retailer and its merchandise. They link the exterior and interior of the store affecting interior appearance as well. They also give shoppers an important preview of what they will find by entering (Klokis 1986; Lange, et al. 2016; Sen et al. 2002). Window displays help profile a store and its offerings, especially to new customers (Berman and Evans 1998). Thus, window displays may be especially important design elements for small and independent retailers. According to Mower et al. (2012), successful window displays are aesthetically pleasing, contain a theme, use warm colors, draw customers into the scene with the use of perspective, use lighting to highlight key areas of the display, and incorporate accessories associated with the products. According to Sen et al. (2002) the influence of window displays will depend on consumer knowledge of the products displayed, the product category, and the shopping task (e.g. planned vs. unplanned). The aesthetic design of the window displays helps consumers judge store image and serve as an input to self-image matching. High congruence should stimulate entry (O’Cass and Grace 2008).

**Entrances:** The entrance to a retail store may vary in its architectural prominence. Its size and style may influence the attractiveness of a store and its ability to attract shoppers (Bennett and Bennett 1970; Lynch 1972). Some entrances may be relatively open with few barriers to entry and afford an unobstructed view (from the outside) of navigable paths inside the store. Other entrance designs may have barriers in the form of counters, kiosks, revolving doors, columns, or displays. Although these barriers may impede movement, they may signal the presence of useful information and excellent customer service. These differences reflect Lynch’s (1972) notion of legibility – the ease of understanding and navigating a space.
The converse of legibility, *mystery* which, it should be noted, is not all bad. Mystery has been associated with both pleasure and arousal as individuals navigate a space (Lynch 1960). Generally, individuals seek an optimum blend of the two. People prefer a generally legible space that has a bit of mystery to reduce the chances to become bored.

*Exterior Lighting:* Baker and her colleagues (Baker et al. 2002; Baker and Grewal 1992) have examined lighting as part of the ambient dimension of interior atmospherics. Light levels, directionality, and temperature may influence the comfort people in a space. In an exterior context, lighting has primary influence at night. Lights may be used to generally illuminate a store and affect perceptions of safety and ease of navigation. Exterior lighting also may have an aesthetic function with lights creating a mood and means of attracting attention. Used effectively, a store may be considered more exciting or appealing after dark than it is in during daylight hours.

*Landscaping:* Here we focus on the trees and greenery that are in close proximity to the retail building and are likely under the control of store or center management. Research has shown that landscaping affects emotional reactions and evaluations of urban settings (Sheets and Manzer 1991; Ulrich 1986; Wolf 2005a; 2009). Wolf (2005b) found that consumers were more likely to patronize landscaped stores even when travel distances were longer. Chebat and Morrin (2007) found that people preferred to patronize stores that had prominent plants, flowers, and trees. Retail exteriors with landscaping are also expected to positively affect shoppers’ perceptions and store evaluations (Mower et al. 2012).

**P3:** Consumer responses are influenced by:
- The perceived size and scale of a retail store, with larger buildings generally appraised more positively.
- The perceived style, age, and complexity of a retail store.
- The predominant colors of a retail store exterior.
- The size, design, and prominence of a store’s signage.
- The proportion of the building that is transparent and window display quality.
- The entrances to a retail store through perceptions of navigation ease and availability of customer assistance.
- The level and nature of exterior lighting associated.
- The presence of trees and other landscape foliage immediately surrounding

**PSYCHOLOGICAL RESPONSES TO OUTDOOR ATMOSPHERICS**

Based on Mehrabian and Russell’s (1974) theory, there is consensus among researchers that environments influence psychological responses which in turn affect behavioral responses (Velitchka and Weitz 2006)). We will discuss both cognitive and affective responses to outdoor atmospherics.

**Definition 4:** Psychological responses to outdoor atmospherics include: 1.) cognitive responses such as belief creation and store categorization and 2.) affective responses such as liking and enjoyment.

**Cognitive Responses**

Observers make inferences and judgments based on design characteristics. Previous research suggests that visual aesthetics pertaining to the environment have the power to influence customer perceptions, convey information, and create a competitive advantage for retailers. (Bitner 1992; Bloch 1995; Mowen, Fang and Scott 2010). The architecture and surroundings of a store are used by consumers to make inferences about the character of a retail setting and people who are located within it (Nasar 1998).
There is some disagreement as to whether cognitive responses to design are based on an overall Gestalt perception of a place or on separate processing of a set of design attributes (Durgee 1988). Given the complexity of outdoor atmospherics comprised of architectural elements pertaining to the store and center as well as large scale setting elements, atomistic processing would be quite demanding. It seems likely that shoppers would first make a global perception of outdoor atmospherics followed by an analysis of individual design features, especially among those individuals with higher design interests and skills (Bloch, Brunel and Arnold 2003).

Outdoor atmospherics are also important in creating, reinforcing, and changing the image of a store and its brands. In a study of housing, exterior materials conveyed information about the homeowner’s style and social class to others (Sadalla and Sheets 1993). Architectural design and setting is often treated by management as a branding opportunity and a method of influencing an image among target consumers. Strong congruency among store exterior, interior, and brand image leads to easier processing, which in turn helps consumers to better understand and perceive a brand (Lee and Labroo 2004; Reber, Schwarz and Winkielman 2004).

The concept of categorization also applies to the cognitive responses stemming from outdoor atmospherics (Bitner 1992; Loken and Ward 1990; Sujan 1985). Categorization is connected to symbolic aesthetics and represents the process by which people assign a label to a stimulus (Nasar 1994). When people see a bicycle with knobby tires and shocks, they classify that product as a mountain bike (Loken and Ward 1990; Mervis and Rosch 1981). Similarly, a particular configurations of design attributes will suggest a fast food restaurant, bank, or fashion boutique (Ward, Bitner, and Bames 1992). In such situations, design elements serve as a mnemonic or shortcut device enabling customers to categorize and distinguish among types of offerings.

Existing categorization research indicates that preferences for incongruity are curvilinear; with moderate levels being most preferred (Meyers-Levy and Tybout 1989; Radford and Bloch 2011). When incongruity is low, there is little motivation to engage in additional processing. When it is very high, the task of categorization becomes quite demanding. In order to hit this sweet spot, a new McDonalds may provide more refined exterior finishes, better landscaping, and provide a larger size than is typical in the fast food industry in order to communicate advantages over competitors. However, even these outlets will retain iconic design elements such as a drive-through window and golden arches to avoid confusing potential customers.

**Affective Responses**

There are also affective responses where design and setting elements are enjoyed for their own sake (Holbrook and Zirlin 1985; Veryzer 1993; Velitchka and Weitz 2006). One reason why outdoor shopping areas may evoke aesthetic responses and positive affect is their connection to nature. Many people seek out appealing outdoor landscapes for their residences or vacations. This appeal is also expected to apply to shopping choices. Urban streets and outdoor centers offer views of the sky and more connection to the weather (Altman and Chemers 1980). The presence of trees and foliage in a shopping setting may have particular strength in creating positive emotions. A number of researchers have found that urban forests stimulate positive emotions among observers (Lohr et al. 2004; Chenowith and Gobster 1990).

Outdoor atmospherics may be more likely to elicit positive affect when both utilitarian and hedonic shopping motives are accommodated. Utilitarian shopping is task-related, and rational (Batra and Ahtola 1991; Sherry 1990). Where outdoor atmospherics allow the goals of a shopping trip to be achieved in an efficient manner, a shopper may feel quite pleased with the retail experience. Hedonic shopping is more playful and is based on the entertainment and exploratory benefits provided during a shopping trip (Babin and Griffin 1994; Holbrook and Hirschman 1982). It is expected that outdoor atmospherics may play a role in determining hedonic value and associated positive emotions. Where both utilitarian and hedonic value

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are both activated by a store’s architecture and setting, the resulting affective responses should be quite high.

In some cases, outdoor atmospherics can lead to negative emotions. Consumer affect may be negative when a store’s setting appears unsafe, cold, noisy, or poorly maintained. One reason enclosed malls rose in prominence was to limit the occurrence of these negative responses. The consistent, weather-independent world of the enclosed mall removed many downside risks. One might argue that in pursuing the elimination of risk, positive emotions were also tamped down. Many shoppers seek greater hedonic value, uniqueness, and authenticity and are willing to take on more risk relating to atmospheric variables (Babin and Griffin 1994). In general, the goal of retailers is to elicit more positive than negative responses among consumers. Managers need to be mindful that outdoor atmospherics are multidimensional and that affective responses can relate to individual atmospheric elements well as to the overall retail setting.

The various cognitive and affective responses taken together will have an effect on store image and the image of the retail setting. Store image is critical to patronage because buyers engage in a matching process with their self-images. When there is high congruence between store image and self-image, a consumer is more likely to favor a given retailer (Sirgy et al. 2000). As visitors approach a shopping center or store, outdoor atmospherics help create an image before the shopper ever goes inside. The impact of outdoor atmospherics on store image will be particularly salient in the case of new or unfamiliar retail businesses where image has yet to be created. The exterior of the store helps determine whether the passerby will enter and gain additional image related information.

**P4:** Outdoor atmospherics elicit cognitive responses regarding the store’s interior, merchandise, and image and how the store should be categorized in the retail marketplace

**P5:** Outdoor atmospherics elicit affective responses that vary in intensity and valence

**P6:** Outdoor atmospherics elicit cognitive and affective responses that together help create an image for the store

**BEHAVIORAL RESPONSES**

The psychological responses just examined are expected to elicit behavioral responses. Based on past theory on design effects, behavioral responses to design fall on a continuum that is anchored by approach and avoidance (Bitner 1992; Bloch 1995; Donovan and Rossiter 1982; Mehrabian and Russell 1974). Approach behaviors capture a desire to get closer to a design, a desire to visit it and spend time exploring it. The most important approach response to outdoor atmospherics is entry to the store. If a store’s exterior has enough appeal to convert passersby into store visitors, that represents a success.

**Definition 5:** Behavioral responses to outdoor atmospherics are mediated by psychological responses and include: buying activity, positive word of mouth about the retailer, loyalty to the retailer, willingness to travel to the retail site, spend time there, and engage in a wider set of activities while on site. These approach behaviors stemming from outdoor atmospherics may be focused on an individual retailer or to a larger retail setting such as center or shopping district.

In studying the determinants of retail attractiveness, Teller and Reutterer (2008) identified three dimensions that capture approach reactions: overall attractiveness reflecting the appeal of the entire retail complex, sustainable attractiveness reflecting customers’ tendencies to revisit a complex, and situational attractiveness reflecting the degree to which customers spend time in a retail complex. Their results showed that atmosphere had a positive, direct and significant effect on overall attractiveness and situational attractiveness, and an indirect positive and significant influence on sustainable attractiveness.
For over 50 years, the Huff model of retail gravitation has sought to explain patronage choices and retail performance. Huff (1964) posited that the size of a retail space was a proxy for shopping district attractiveness. Larger shopping centers presumably offer greater selection and lower prices based on economies of scale. Under this theory, the attractiveness of a shopping center is directly related to its size and inversely related to its distance from the shopper. One can view the Huff model as an exploration of approach and avoidance behavior where gravity reflects approach tendencies. Although not mentioned as such, Huff’s model focused on one aspect of store architecture, the size of the retail space. One might consider an expansion of this model that adds other atmospheric elements to square footage as measures of retailer attractiveness and consumer approach tendencies. In other words, stores and shopping districts that offer superior outdoor atmospherics may draw consumers from longer distances than do centers offering the same merchandise but with more mundane designs.

Other approach responses include enhanced store loyalty. Superior outdoor atmospherics may lead consumers to repeatedly choose a particular shopping venue over competitors. Sports marketers indicate that in cases where fans love a stadium’s atmospherics, they become frequent ticket buyers and are less sensitive to poor team performance (Hightower, Brady and Baker 2002; Wakefield and Sloan 1995; Wakefield et al. 1996). Another approach response is positive word of mouth about the shopping venue. When a consumer finds the outdoor atmospherics of a retail area to be distinctive and attractive, there is likely to be a tendency to inform others. Satisfied consumers want to share their find with others (Babin and Attaway 2000; Bloemer and Odekerken-Schroder 2002.; Brown, et al. 2005)

When outdoor atmospherics evoke negative psychological responses, consumers avoid visiting a retail location (Bitner 1992; Donovan and Rossiter 1982; Mehrabian and Russell 1974). Time and money spent in the setting will be minimized with little discretionary exploration. Again, word of mouth activity may occur, but in this case it will be negative. Consumer avoidance behaviors motivate retailers to consider changes in their outdoor atmospherics or a move to a new venue. The decline of enclosed shopping malls can be considered as the culmination of long term avoidance responses (Peterson 2015). Shoppers are avoiding stores and centers that fail to provide the atmospheric benefits available at competing outdoor venues.

P7: The more positive the psychological responses to outdoor atmospherics, greater the tendency to approach a retail store or center and the more negative the psychological responses to outdoor atmospherics, greater the tendency to avoid a retail store or center

**Individual differences as moderators of responses**

The effect of outdoor atmospherics on psychological responses is not expected to be consistent among customers. Bloch, Brunel, and Arnold (2003) looked at differences in product design centrality and found that people differ in design skills and their appreciation for design. Viera (2010) applied the design centrality construct and measurement approach to retail store design with similar results. For purposes here, we consider design centrality to serve as a moderating individual difference in our framework. That is, the exterior design of a store will generate stronger responses among persons who care more about aesthetics and have more developed design skills.

**Definition 6:** Individual differences that moderate the effect of outdoor atmospherics on psychological responses include: design centrality, processing style, shopping objectives, and personality.

*Design Centrality and Acumen:* Csikszentmihalyi and Robinson (1990) argued that design acumen is an individual difference trait. Individuals with greater design skills or acumen more readily appraise designs and hold more sophisticated design preferences. Reber, Schwarz and Winkielman (2004) argued that aesthetic pleasure depends on the perceiver’s fluency in processing design cues. Thus, people
characterized by high design centrality should use store aesthetics as an important choice criterion and tend to have more skill in the evaluation of design. These authors also suggested that design centrality moderates the level of response to both good and bad designs.

Individuals also may differ in design-related experience. With more exposure to architecture of high quality and diversity, consumers may develop a more sophisticated eye to evaluate store exteriors (Osborne 1986; Viera 2010). More experienced consumers can better judge the architectural effort going into a retail establishment. Retailers developing the outdoor atmospherics for a store or center need to consider the level of design centrality and skill found among their target segment. One can argue that it is wasteful to allocate significant design-related resources to the pursuit of a low design centrality segment (Bloch et al. 2003). In today’s market, this dictum does not seem to be followed, however. Stores, restaurants, and theme parks create outdoor atmospherics of incredible quality while targeting a broad market that is likely made up of a relatively small percentage of design focused shoppers. The assumption here is that everyone will appreciate the aesthetics offered, some more than others.

Processing Style: Several authors (Childers, Houston and Heckler 1985; Holbrook, et al. 1984) have found that people also vary in their predominant processing style. Some people may be labeled verbal processors while others favor visual processing. Holbrook (1987) found that aesthetic judgments differed across respondents representing the two forms of processing. Visualizing consumers may have stronger approach responses to outdoor atmospherics because they more closely attend to visual design elements than do consumers who favor verbal processing.

Shopping Objectives: Another individual moderator of responses to outdoor atmospherics are shopping objectives. A more defined and ambitious shopping agenda may lead to reduced attention to store architecture. This situation follows the central vs. peripheral processing dichotomy introduced by Petty and his colleagues (Petty, Cacioppo and Schuman 1983). Under their theory, a goal-directed, high involvement shopper focuses on the purchase task (central route) and will be less concerned with peripheral cues such as the store’s architecture and surroundings. Hedonic shoppers with ample time, focus on the pleasure of the activity and are expected to pay greater attention to peripheral cues such as outdoor atmospherics.

Personality: McKechnie (1974) described a number of personality traits that influence responses to a spatial environment and are relevant to the study of outdoor atmospherics. Variations in these traits are expected to moderate consumer responses to exterior atmospherics. Pastoralism is a tendency toward environmental conservation and a preference for open, natural surroundings. Urbanism, on the other hand, represents the opposite of pastoralism and refers to the enjoyment of crowded, fast-paced settings typical of city life. Stimulus Seeking is characterized by a wide range of interests and the enjoyment of physical sensations, travel, and exploration. Environmental Trust is a trait connected to a general trust of the environment, tempered with a fear of being alone and vulnerable. Antiquarianism is associated with an affinity for old places and old things. Need for Privacy refers is an enjoyment of seclusion and freedom from disturbance. Mechanical Orientation refers to people who are interested in working with science and technology (McKechnie 1974).

The mix of these traits present in a given consumer may influence psychological responses to a particular outdoor shopping setting. Where there is a clear match between a consumer’s mix of these traits and the nature of the outdoor atmospherics, psychological responses should be highly positive and lead to approach behaviors. For example, a consumer who manifests a high level of pastoralism may be particularly positive about outdoor shopping venues offering foliage and open spaces to sit. A stimulus seeking individual on the other hand may be drawn to shopping areas noted for their bright lights, ambient sounds, and crowds.
Experience: Consumers also may differ in terms of their experience and loyalty to a store and its constituent brands. A shopper who has a clear image regarding the store interior and anticipated transaction may display more modest reactions to exterior cues. Tourists and first time visitors may be strongly influenced by outdoor atmospherics given they have little else to guide them as they make a choice of outlet. Thus, to predict response from consumers based on exterior atmospherics, it is necessary to know their past history with the store and area in question.

P8: The relationship between outdoor atmospherics and psychological responses is moderated by individual differences such as:
- design centrality
- design acumen
- shopping objectives
- personality
- experience

Situational factors
As shown in the framework, several situational variables moderate both psychological and behavioral responses normally obtained from a package of outdoor atmospherics.

Definition 7: Moderating situational variables include: weather, crowding, and competing retail experience.

Weather: One factor that is highly relevant to outdoor atmospherics is weather. Enclosed malls were developed with the goal of eliminating variation in this factor. Surprisingly, the variation and connection to nature, once thought to be a negative, is today an asset of outdoor shopping venues. Even in cities with relatively harsh weather, such as Phoenix, outdoor shopping centers are replacing enclosed malls (Postrel 2006). Just as baseball fans prefer real grass and outdoor stadiums, there appears to be something similar in play for shoppers desiring a return to the authenticity of outdoor shopping area (Rosenweig 2005). Nevertheless, it is expected that shopper traffic and the appeal of outdoor shopping venues will vary according to the weather. Bitter cold or rain are still expected to reduce the positive responses to outdoor shopping areas in comparison with enclosed alternatives.

Crowding and social surroundings: Responses to outdoor atmospherics also may be moderated by the number of people present in the outdoor setting. Belk (1975) addressed the concept of social surroundings, or the persons who are present in a setting along with the observer. This component of Belk’s situational taxonomy is echoed in Baker’s social dimension of atmospherics (Baker et al. 1988). Reactions to crowds in retail locations may vary according to the purpose of the shopping trip and the nature of the individual shopper. Bellenger and Korgoankar (1980) argued that consumers with a strong task orientation are bothered by crowds, whereas recreational shoppers are not. For all types of shopping objectives, individuals differ in the optimal level of crowding. In some cases, too little crowding can become a negative situational moderator. For example, if a shopping venue is sparsely occupied it may reduce assessments of it trendiness or safety.

In addition to the number of persons in a shopping area, the type of individuals present may also have an impact on shopper responses. For example, if a particular shopping center attracts people that a consumer finds attractive, this may elevate judgments of the outdoor atmospherics beyond what the design alone contributes. There can be a halo effect based on the clientele that a consumer observes shopping in a space. Conversely, a venue that is attractive, based solely on design considerations, may lose appeal if it crowded with persons that the observer does not appreciate. For example, some malls prohibit teens at certain times because their presence in large numbers is considered aversive to older, more free-spending shoppers.
Exposure to competitive retail locations: Responses to outdoor atmospherics also may be moderated by recent exposure to other shopping areas. For example, consumers who have recently visited Europe’s great shopping streets may not be as impressed with their hometown options that would typically be pleasing to their neighbors. Even in the same metro area, the presence of a retail setting with superior outdoor atmospherics may depress the positivity of responses to rival centers and to enclosed malls. The consumer satisfaction literature has long argued that expectations determine satisfaction (Oliver 1981). Therefore, exposure to particularly attractive outdoor atmospherics may elevate expectations regarding retail design, at least for a time, making more common stores appear worse in comparison. In a similar vein, Richins (1991) found that exposure to idealized images of beauty in the media elevated comparison standards and reduced appraisals of peer attractiveness. In our context, exposure to excellent architectural examples may similarly affect comparison points and depress evaluations of stores offering moderate design quality.

P9: The relationships between outdoor atmospherics and psychological responses and between psychological responses and behavioral responses are moderated by variables such as:

• weather
• crowding and people present
• competitive retail experience

MANAGERIAL IMPLICATIONS

Retail managers devote considerable resources to the determination of prime retail locations. Typically, these location decisions are determined by variables such as traffic patterns, transportation accessibility, and the price of real estate (Hernandez and Bennison 2000). In addition to these factors, retailers should also consider connections to outdoor atmospherics. As noted above, there are many setting or environmental factors that help to create an attractive retail location. Managers should consider factors such as the visual richness of the shopping area, the proximity of eating places, walkability, and the presence of foliage in making the most effective location decisions. Drezner (1994) modeled retail location effects and argued that customers choose a retail complex that is more attractive over a less attractive but closer alternative as long as the distance differential (attractiveness differential converted to distance) is not greater than the difference in physical distance between the facilities. The quality and diversity of the architecture of other stores in the area should also be considered.

Considering outdoor atmospherics also provides chain retailers with an explanation for variable sales performance across individual outlets. Stores selling the same merchandise at the same price may vary in performance based on the drawing power of store architecture and setting. Outdoor atmospherics also may prove useful in the creation of strong, positive brand images among target segments. Where brand image, product designs, graphic design, and atmospherics, both inside and out, are congruent, one would expect many brand building benefits to the firm.

Appealing outdoor atmospherics also help retailers attract and retain staff. Workplace quality of life has long been shown to influence employee morale and productivity (Ulrich 1991). A store located in an attractive neighborhood with ample nearby dining options and pleasant walkways may make staff lunch hours especially pleasant and enhance retention. Appealing exterior architecture and surroundings also may increase the pride of the staff.
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### Table 1. Previous studies on outdoor atmospherics

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<td>Window displays</td>
<td>Window displays are associated with increase in sales. Design and colors used in a display affect recall of the information provided. Also, larger window displays attract more attention.</td>
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<td>Sen, Block, and Chandran (2002)</td>
<td>Window displays</td>
<td>Information from window displays affect consumers store entry decision. Shoppers trying to infer store image and product fit from store windows are more likely to enter than those looking for more specific information such as promotions. Store windows are more effective on consumers with medium level of knowledge compared to those with high knowledge of product category.</td>
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Figure 1: Framework for the Study of Outdoor Atmospherics and their Impact
HOW ANGER AND ANXIETY INFLUENCE CHOICE IN SELF-CONTROL DILEMMAS

Shruti Koley1, Caleb Warren2, Suresh Ramanathan1
1Texas A&M University, 2University of Arizona

ABSTRACT

Prior literature has shown that negative emotions activate a hedonic need for mood repair, thereby increasing the likelihood of selecting a gratifying option (e.g., spending money) over a virtuous option (e.g., saving money) in a self-control dilemma. Negative emotions, however, also activate other needs. For instance, anxiety activates a need to seek security, whereas anger activates a need to exert dominance. Consequently, emphasizing the benefits of virtuous options that align with the need activated by a negative emotion tends to improve choices in self-control dilemmas. Specifically, anxious consumers show higher self-control when a security benefit rather than a dominance benefit is emphasized, whereas angry individuals show higher self-control when a dominance benefit rather than a security benefit is emphasized. For example, anxious consumers are less likely to overspend if they associate saving with building a safety net, whereas angry consumers are less likely to overspend if they associate saving money with becoming powerful. Importantly, however, instrumental benefits only enhance self-control in the present, not when choices are about the distant future. We test our predictions in two domains of self-control: studying (studies 1 and 2) and saving money (studies 3 and 4).

INTRODUCTION

Consumers regularly experience negative emotions from anger and fear to anxiety and despair (Glassner 2010). Americans are increasingly angry and anxious about corrupt government officials, terrorist attacks, identity theft, and economic collapse (Chapman University Survey of American Fears 2016). In fact, 43 percent of Americans suffer from moderate to high stress on a daily basis (Cohen and Janicki-Deverts 2012). Fearmongering by politicians and the media has only exacerbated anger and anxiety. According to the Esquire/NBC News Survey (2016), 49% of Americans experience more anger than they used to when thinking of current events and the news related to the 2016 presidential elections.

The increased emotional baggage that consumers now carry begs an important question: How do negative emotions such as anger or anxiety influence choice in self-control dilemmas? Much of past literature suggests that negative emotions hurt self-control. Distress and sadness increases overspending (Cryder et al. 2008) and the consumption of unhealthy foods (Andrade 2005; Fedorikhin and Patrick 2010; Garg, Wansink, and Inman 2007). Negative emotions also trigger self-defeating behavior and cause relapse into unhealthy habits, such as smoking, excessive alcohol consumption, and drug abuse (Cooper et al. 1995; Tice and Baumeister 1997).

Building on research suggesting that different emotions activate distinct needs (or goals) (Lerner and Keltner 2000; Raghunathan and Pham 1999; Salerno, Laran, and Janiszewski 2014; Tooby and Cosmides 1990; Van Osselaer et al. 2005) that consumers try to satisfy by choosing means that are most instrumental (Huang and Bargh 2014; Van Osselaer et al. 2005; Van Osselaer and Janiszewski 2012), we show that negative emotions do not have as straight-forward an effect on self-control (viz. impairment) as has been commonly argued in the past. Rather, we argue and demonstrate that the effect of negative emotions on choice in self-control dilemmas depends on whether the benefits associated with virtuous option are aligned with the needs activated by the negative emotion (i.e. the instrumentality of the virtuous option).
Take, for example, a situation in which a consumer needs to save money, a condition that requires self-control. We argue that experiencing a negative emotion can either increase or decrease a consumer’s likelihood of saving, depending on whether the benefits associated with the act of saving money seem more or less instrumental to the needs activated by the specific emotion. Anger, for example, makes consumers want to be dominant (Tamir, Mitchell, and Gross 2008), whereas anxiety makes them want to be secure (Raghunathan, Pham, and Corfman 2006). Saving in order to buy the biggest house on the block would be consistent with a need for dominance, whereas saving money to build an emergency fund would be consistent with a need for security. Because anger activates a need for dominance, we argue that angry consumers are less likely to exert self-control when the savings are to be put into an emergency fund (a security benefit) than when they are to be put aside to buy the biggest house on the block (a dominance benefit). On the other hand, because anxiety activates a need for security, anxious consumers tend to be less likely to exert self-control when they are saving money to buy the big house than when they are saving for emergencies.

Our research makes three important contributions. First, we contribute to our understanding of how negative emotions influence choices in self-control dilemmas. Negative emotions impair self-control only when the benefits associated with the virtuous option are not instrumental to the specific needs activated by the negative emotion. Second, we suggest a new way of conceptualizing decisions in self-control dilemmas. Rather than viewing self-control as a choice between a gratifying option that provides an immediate benefit and a virtuous option that provides a long-term benefit, we show that both short-term and long-term benefits can facilitate different higher-order needs, such as dominance and security. Therefore, knowing whether a consumer is likely to select a virtuous option in a self-control dilemma requires not only understanding consumers’ desire for immediate hedonic benefits (Baumeister 2002; Hoch and Loewenstein 1991), but also understanding consumers’ other temporarily accessible needs, and whether or not selecting the virtuous option facilitates these needs. Third, we show that instrumental benefits only increase the choice of virtuous options in the present, and not in the future. By showing that that effect of emotions on choice in self-control dilemmas depends on the temporal distance to the behavior, we supplement an emerging line of work that helps explain how and when goal activation drives choice (Laran 2010; Laran, Janiszewski, and Cunha 2008).

**CHOICE IN SELF CONTROL DILEMMAS**

A self-control dilemma involves a choice between a virtuous option (e.g., studying) promising long-term benefits and a gratifying option (e.g., indulging in entertainment) offering immediate pleasure (Hoch and Loewenstein 1991; Tice and Baumeister 1997). Consistent with much of the literature, we use self-control to refer to the decision to select a virtuous option offering long-term benefits over an immediately pleasurable gratifying option (Vosgerau, Scopelliti, and Eun Huh 2016). In contrast, self-control can alternatively refer to a resource (i.e., willpower) that consumers rely on to select the virtuous option in self-control dilemmas (add cite; something by Baumeister should work here). To be clear, we use self-control strictly to refer to the choice of a relatively virtuous option over a relatively gratifying option in a self-control dilemma, not to refer to the resources that the consumer draws upon to make this choice.

We contend that the literature, which has conceptualized self-control dilemmas as a trade-off between immediate pleasure and long-term benefits, overlooks critical components of the choice dilemma. Both gratifying options and virtuous options influence the consumer’s ability to satisfy multiple short-term and long-term needs, and consumers choose the option that is most instrumental to their needs (Huang and Bargh 2014; Kruglanski et al. 2002; Van Osselaer and Janiszewski 2012). We therefore conceptualize choice in a self-control dilemma as depending on the relative activation of the consumers’ different needs and the extent to which the gratifying and virtuous options are expected to be instrumental to these needs (Van Osselaer and Janiszewski 2012). Formally, consumers select the virtuous option (V) in a self-control dilemma when the sum of the activation of the consumers’ needs (N1, N2,…, Nn) multiplied by the instrumentality of the virtuous option to satisfy each of these needs (VB1, VB2,…, VBn) is greater than the

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sum of the activation of the consumers’ needs multiplied by the instrumentality of the gratifying option to satisfy each of these needs (GB₁, GB₂, … GBₙ; see figure 1a):

\[(1) \quad \sum_{n}(N_n*\text{VB}_n) > \sum_{n}(N_n*\text{GB}_n)\]

**Figure 1A**

Consider the following example: John is deciding between buying an expensive pair of sunglasses (G) or saving money (V). The choice represents a typical self-control dilemma because John’s desire for immediate pleasure (i.e., a hedonic need, N₁) increases the likelihood of buying the sunglasses, as they would make John feel good now (i.e., GB₁ > VB₁). However, this discretionary purchase would also prevent him from saving money, which he could potentially use towards future needs. For instance, John could save for emergencies and satisfy a security need, or save to buy the biggest house on the block and satisfy a dominance need. Viewing the effect of emotions on self-control through the lens of a goal-based model of choice, we can now examine how and when negative emotions influence self-control.

**DIFFERENT EMOTIONS ACTIVATE DIFFERENT NEEDS**

Emotions exert a large influence on judgments and decisions (Pham 2007). The effect of emotions can either be integral or incidental (Han, Lerner, and Keltner 2007). Our research focuses on incidental effects of emotions on self-control. Incidental effects refer to when an emotion elicited by a stimulus or experience influences unrelated judgments or decisions, such as when anxiety about an approaching flight alters what a consumer decides to buy at the supermarket (Cavanaugh et al. 2007; Han et al. 2007).

According to a functionalist theory of emotions (Lerner and Keltner 2000; Raghunathan and Pham 1999; Tooby and Cosmides 1990), incidental effects of emotions occur because emotions activate distinct needs that can influence subsequent judgments and decisions (Carver 2006; Smith and Ellsworth 1985). Because negative emotions are aversive, consumers experiencing negative emotions want to regulate, or get rid of, their negative feelings, thereby activating a hedonic need (Ochsner and Gross 2005; Schmeichel and Inzlicht 2013; Tice et al. 2001). One way that consumers can fulfill this hedonic need is by selecting a gratifying option over a virtuous one (because GB₁ > VB₁). This is why sadness tends to increase the likelihood that a consumer eats unhealthy foods (Garg et al. 2007) and overspends on discretionary purchases (Cryder et al. 2008).
Negative emotions, however, can activate other needs (e.g. N2, N3) in addition to hedonic pleasure (Tooby and Cosmides 1990). For instance, fear activates a need for self-protection (Griskevicius et al. 2009), disgust activates a need to avoid contaminants (Rozin, Haidt, and McCauley 2008), and sadness activates a need to avoid future losses (Salerno et al. 2014). Recent evidence also suggests that these other needs activated by emotion can in fact help individuals attain their long term goals (i.e., GBn < VBn). For that reason, individuals often actively seek negative emotions in order to deal with difficult situations. For instance, Tamir, Mitchell, and Gross (2008) show that people will prefer to experience anger to deal with confrontational contexts. On the other hand, people prefer to be worried or fearful when they are motivated to avoid threats, such as failing on an exam (Tamir and Ford 2009; Tamir 2005). These findings contradict prior research on hedonic emotion regulation, which suggests that people in negative moods generally pursue behaviors, such as gratification that is aimed at facilitating their hedonic need.

But even though these findings suggest that negative emotions may not always be detrimental to self-control, it is not well understood when negative emotions impair self-control, and when they don’t. With a few notable exceptions (Durante and Laran 2016; Salerno et al. 2014), this question remains largely unanswered.

Because the effect of a negative emotion on self-control depends on the instrumentality of the virtuous (VBn) and the gratifying option (GBn) towards the specific need (Nn) that the emotion activates, a goal-based model suggests two ways in which these other needs activated by negative emotions can help self-control. One, recent studies demonstrate that increasing the strength of these other adaptive needs (Nn) can enhance self-control. For example, strengthening the activation of a need to avoid future losses, which the virtuous option benefits more than the gratifying option, improves self-control among sad consumers (Salerno et al. 2014).

Alternatively, the goal-based model of self-control choice also suggests a novel hypothesis: self-control can also be increased by increasing the instrumentality of the virtuous option (i.e., increasing VBn), or decreasing the instrumentality of the gratifying option (i.e., decreasing GBn) towards other needs activated by an emotion. We next discuss how virtuous and gratifying options can be made more instrumental to the needs activated by two negative emotions, anxiety and anger.

Needs Activated by Anxiety and Anger

Like other emotions, anxiety and anger evolved to help humans cope with problems of survival and reproductive success (Mauss et al. 2005). Anxiety occurs when people recognize a threat or the possibility of not reaching a goal. For example, an airline passenger might be anxious about the plane crashing, whereas a student might be anxious about not passing an exam. Anxiety alerts individuals to threats and potential goal failures (Schmeichel and Inzlicht 2013) and helps get them back on track by activating a need to seek security (Lench et al. 2014; Raghunathan et al. 2006). This need for security spills over to unrelated decisions by increasing the preference for options that offer greater safety and control (Raghunathan et al. 2006).

Anger, on the other hand, is experienced when the pursuit of a reward is disrupted due to wrongful interference (Chow, Tiedens, and Govan 2008; Kashdan et al. 2015). For example, a student might be angry about an unfair exam question, a consumer might be angry about being charged a higher price than others, and a worker might be angry about not receiving an expected raise. The situations that trigger anger are similar in that they present an obstacle that individuals want to overcome. However, unlike the situations that cause of anxiety, the situations that cause anger are also perceived as unfair, undeserved, and caused by unjust actions of other individuals or institutions (Pillutla and Murnighan 1996). Overcoming these obstacles requires the exertion of dominance, which refers to the ability to acquire rewards or valued resources in the presence of others (Emerson 1962). Consistently, research shows that individuals prefer to seek anger in confrontational situations (Tamir et al. 2008). Relatedly, anger tends to increase sensitivity to
rewards but not sensitivity to threats (Carver and Harmon-Jones 2009), and dominance offers a better means of acquiring rewards than of reducing threats.

In sum, we predict that in addition to increasing a hedonic need, anxiety will increase the need for security whereas anger will increase the need for dominance (see figure 1b).

**Figure 1B**

By integrating predictions about the distinct needs activated by anxiety and anger with a goal based choice model, we make three new predictions. One, consumers should be less likely to gratify when the benefits of the virtuous option in a self-control dilemma are more instrumental to the need activated by the consumers’ emotional state. Because anxiety activates a security need, we hypothesize that anxious consumers should be more likely to exert self-control when the virtuous option (e.g., studying) in a self-control dilemma is associated with a security (e.g., getting a secure job) rather than a dominance benefit (e.g., getting a prestigious job). On the other hand, because anger activates a dominance need, angry consumers should be more likely to exert self-control when the virtuous option is associated with a dominance rather than a security benefit.

**H1**: Emotional consumers are more likely to show self-control when the virtuous option in the choice set is more instrumental to the needs activated by the consumers’ emotional state.

Two, just as self-control can be improved when the benefit of the virtuous option is instrumental towards consumers’ active needs, it can also be impaired when the benefit of the gratifying option is instrumental towards the active needs. Consider a consumer who is trying to save money and is confronted with an opportunity to purchase an additional pair of sunglasses. In addition to offering a hedonic benefit, the gratifying purchase of the sunglasses could also potentially satisfy a need for security (e.g., UV ray protection), or a need for dominance (e.g., if the brand signals status and prestige). Consequently, we hypothesize that anxious consumers should be less likely to exert self-control when gratifying option is
associated with security rather than dominance benefits, whereas angry consumers should be less likely to exert self-control when gratifying option is associated with dominance rather than security benefits.

H2: Emotional consumers are less likely to show self-control when selecting the gratifying option in the choice set is more instrumental to the needs activated by the consumers’ emotional state.

Our third prediction identifies a boundary condition for when the instrumentality of the virtuous and gratifying options are likely to drive choice in self-control dilemmas. Increasing the activation of a need increases the selection of the instrumental option in common or typical contexts (e.g., Chartrand et al. 2008), but it is less likely to increase the selection of the instrumental option in uncommon or atypical contexts (Laran et al. 2008). For example, participants primed with a hedonic need were more likely to select a fun gift over a sophisticated gift when the gift was for the participant’s father (a common choice context) but less likely to select the fun gift for a friend’s father (an uncommon choice context; Laran et al., 2008). An important factor influencing the typicality of a choice context is whether the decision concerns the present (or near future) versus the distant future (Laran et al. 2008; Laran 2010). Choosing where to dine tonight is more common than choosing where to dine in a month, just as deciding how much money to save this month is more common than deciding how much money to save in the same month next year. Consequently, since choices concerning the distant future are less typical, active needs are more likely to influence decisions about what to do now than decisions about what to do in the distant future (Carlson, Meloy, and Miller 2013; Fishbach and Dhar 2005; Laran 2010; Laran et al. 2008).

It follows that the needs activated by emotions should have a larger effect on self-control decisions concerning the present (e.g. saving vs. spending money now) than those concerning the future (e.g. saving vs. spending money next year). Consequently, we predict that temporal distance will moderate the effect of instrumentality on choice in self-control dilemmas. That is, anxiety should increase the choice of a virtuous option offering a security rather than a dominance benefit when deciding what to do now but not when deciding what to do in the distant future. Analogously, anger should increase the choice of a virtuous option offering a dominance rather than a security benefit when deciding what to do now but not when deciding what to do in the distant future.

H3: Temporal distance moderates the effect of instrumentality on self-control.
Our core argument is that increasing the instrumentality of the virtuous option towards the needs activated by anger and anxiety can increase self-control among angry and anxious individuals. Study 1 manipulates anger and anxiety, which we predict will activate the needs for security (N2) and dominance (N3), respectively. Study 1 additionally manipulates the instrumentality of the virtuous option (i.e., studying for a job interview) by varying whether studying benefits security (i.e., VB2 is high) or dominance (i.e., VB2 is low). The study thus tests H1 by exploring if anxiety is less likely to impair self-control when studying is described as a means of getting a secure rather than a prestigious job (i.e., when VB2 is increased), but if anger is less likely to impair self-control when studying is described a means to getting a prestigious rather than a secure job (i.e., when VB3 is increased).

**Method**

Three hundred and sixty-two undergraduate students at a Southwestern university in the United States completed the study in return for research credits. For this and subsequent studies we made an a priori decision to filter out respondents who had previously completed all or part of the study beforehand (see appendix 1 for detailed filtering criteria). The sample sizes reported in each of the studies are the final samples after removing participants who did not qualify.

The study had a 3 (emotion: anxiety vs. anger vs. neutral) x 3 (benefit: security vs. dominance vs. neutral) between-subjects design. Because security and dominance benefits manipulate instrumentality in the study, we only contrast them, and not neutral and security benefits, or neutral and dominance benefits. One possibility is that individuals may perceive neutral benefits to be somewhat related to both security and dominance, in which case the means in neutral benefits condition should lie somewhere between the means in the security and dominance conditions. However, since we do not know exactly how participants will interpret the instrumentality of the neutral option towards the security and dominance needs, we do not make any formal predictions for these conditions.

The study contained two parts described as unrelated studies. In the first part, participants were randomly assigned to an emotion condition. To manipulate emotions, participants wrote essays about events...
that make them feel angry, events that make them feel anxious, or activities that they had done that day (neutral condition) under the pretext that this study was designed to examine students’ lives (Lerner and Keltner 2001; Winterich and Haws 2011). Participants were first asked to write about three to five experiences or events that make them anxious (anxiety condition), three to five experiences or events that make them angry (anger condition), or three to five activities that they had done that day (neutral condition). Participants subsequently described the experience, event, or activity that makes them the most anxious, the most angry, or that they completed the most recently, respectively.

As an ostensibly separate study, participants next selected an article to read. They had a choice between reading a relatively virtuous technical article on how to improve their performance on job interviews or reading a relatively gratifying article that contained comedic banter and humorous cartoons (see appendix 3 for the complete stimuli). Furthermore, we varied whether the virtuous option, i.e. the job interview article, was associated with a security benefit (A good job provides you a great deal of safety and security. People with good jobs are less likely to be laid off during turbulent times and are more protected from social, physical, and financial problems that afflict people who don’t have a good job), a dominance benefit (A good job allows you to exercise a great deal of influence and power. People with good jobs get to make important strategic decisions at work and acquire far more wealth and status than people who don’t have a good job), or a neutral benefit (People with good jobs lead a pleasant life).

We measured self-control using a binary choice between reading the job interview article (coded as 1) and reading the entertaining article (coded as 0). After reading their selected article, participants indicated their gender, whether they were looking for a job (1 = absolutely not; 7 = absolutely yes), and whether or not they had previously completed any of parts of the study before. Because whether participants were looking for a job should affect the choice between the articles, we controlled for this measure in the analysis. In this and subsequent studies, we report the results without the covariates in Appendix 2.

Pretests
We conducted pretests with independent samples both to confirm that participants experienced the choice as a self-control dilemma and that the writing task effectively manipulated participants’ emotions. To test the articles in the choice set, we asked participants (N = 27) to indicate when they thought they would receive the benefits of “reading an article that helps prepare for job or internship interview”, and “reading an entertaining article” on a 6-point scale (1 = Right away, 2 = Within a week, 3 = In a few weeks, 4 = In a few months, 5 = In a year, 6 = After a few years). They were also asked to indicate the self-control required for “reading an article that helps prepare for job or internship interview”, and for “reading an entertaining article” on a 5-point scale (1= None, 5 = A lot). As expected, “reading an article that helps prepare for job or internship interview” was associated with longer term benefits (M = 2.81) than “reading an entertaining article” (M = 1.37, p < .001), and was perceived to require greater self-control (M = 2.30) than “reading an entertaining article” (M = 1.44, p < .001).

We also tested the effectiveness of the emotion manipulation by asking participants (N = 181) to indicate how anxious, worried, nervous, angry, frustrated, sad and negative they felt on a 9-point scales (1= not at all, 9 = very much) after completing the emotion manipulation. Ratings for “anxious”, “worried”, and “nervous” were averaged to form a composite score for anxiety (standardized α = .89), while ratings for “angry”, and “frustrated” were averaged to form a composite score for anger (r = .80). Ratings for “negative”, and “sad” were averaged to form a composite score for negativity (r = .66).

To examine the effects of emotions on the ratings of anger and anxiety, we conducted a 2 (ratings: anger, anxiety) × 3 (emotion: anger, anxiety, neutral) repeated measures ANOVA using ratings as a within-subjects factor and emotion as a between-subjects factor. The results revealed the predicted interaction between ratings and emotion (F(2, 178) = 13.52, p < .001). Specifically, angry participants (M = 3.21) were more angry than anxious (M = 2.65; F(1, 178) = 4.10, p < .05) and neutral participants (M = 1.83; F(1, 178)
= 23.36, p < .0001). On the other hand, anxious participants (M = 3.72) were more anxious than angry (M= 3.02; F(1, 178) = 7.32, p < .01) and neutral participants (M = 2.80; F(1, 178) = 12.48, p < .001). Finally, a between-subjects (emotion: anger, anxiety, neutral) ANOVA revealed that emotion condition also influenced overall negativity (F(2, 178) = 4.04, p < .05). Participants in the neutral condition felt significantly less negative (M_{neutral} = 1.97) than those in the anxiety condition (M_{anxiety} = 2.64; F(1, 178) = 6.60, p < .05) and anger condition (M_{anger} = 2.60; F(1, 178) = 5.64, p < .05). Participants in anger and anxiety condition did not differ in negativity (F(1, 178) = 0.03, NS).

**Results**

To test the effects of emotions on self-control, we conducted a 3 (Emotion: anger, anxiety, and neutral) × 3 (Benefits: security, dominance, neutral) between-subjects logistic regression controlling for whether participants were looking for a job. The effect of the emotion manipulation on self-control depended on whether participants read that jobs provide dominance or that jobs provide security (two-way interaction: Wald $\chi^2(4) = 13.16; p = .010$; see figure 3). In line with our prediction, emotions increased self-control when jobs were associated with a consistent benefit rather than an inconsistent benefit. Specifically, angry participants were more likely to choose the job-interview article over the entertaining article when jobs were described as a path to greater influence (36%) rather than security (17%, Wald $\chi^2(1) = 4.61; p = .032$). Conversely, anxious participants were more likely to choose the job interview article over the entertaining article when jobs were described as a path to security (43%) rather than influence (22%, Wald $\chi^2(1) = 3.98; p = .046$). Participants in the neutral condition, on the other hand, did not exhibit any difference in self-control regardless of whether jobs were described as a means to more influence (38%) or to greater security (33%, Wald $\chi^2(1) = 0.99; NS$).

**Figure 3:**

**Study 1: Proportion of Participants Showing Self-Control Depending on Emotion and the Benefit of the Virtuous Option**

![Graph showing the proportion of participants choosing the job interview article based on emotion and benefit.]

**Discussion**

In this study we show that individuals exert more self-control when the virtuous option offers a benefit that is consistent rather than inconsistent with the need activated by the participant’s emotional state. Specifically, anxiety led to a higher likelihood of reading a relatively virtuous job interview article when jobs were described as providing security rather than dominance. Conversely, anger increased the likelihood
of reading the job interview article when jobs were described as providing dominance rather than security. By using a real self-control dilemma relevant to the student participants (i.e. reading a virtuous article related to job-interviews vs. an enjoyable article with cartoons), the study offers initial evidence that the effects of anger and anxiety on self-control depend on the benefits of the virtuous option in the choice set. The study, however, did not directly assess whether the needs for security and dominance mediated the observed effects. We address this limitation in studies 2a and 2b.

STUDY 2

Studies 2a and 2b use a causal-chain approach (Spencer, Zanna, and Fong 2005) to provide evidence of the mediating process. Study 2a uses a lexical decision to assess whether anxiety activates a need for security (N2) and whether anger activates a need for dominance (N3). The task measures participants’ response time to sentences related to security (e.g., “Seek shelter during tornadoes”) and dominance (e.g., “The captain gave orders”). The greater the activation of the need, the faster the participants’ ability to identify sentences associated with that need. Thus, we predicted that anxious participants would identify sentences related to security faster than participants who aren’t anxious, but that angry participants would identify sentences related to dominance faster than participants who aren’t angry.

Study 2b tested the next part of the process by directly priming the need for security (N2) or dominance (N3) to explore whether self-control is higher when the benefits associated with the virtuous option match the consumer’s active need (i.e., when the instrumentality of the virtuous option is higher). We predicted that individuals primed with dominance would be more likely to exert self-control when the virtuous option provides a dominance benefit rather than a security benefit. On the other hand, we predicted that individuals primed with security would be more likely to exert self-control when the virtuous option provides a security benefit rather than a dominance benefit.

Study 2a: Method

Two hundred twenty undergraduate students at a Southwestern university in the United States completed the study for research credits. Participants were randomly assigned to one of three conditions (“anger,” “anxiety,” or “neutral” emotion) in which they performed the same writing task as in Study 1. After the writing task, participants completed an ostensibly unrelated study, which required them to respond to a lexical decision task. In this task, participants saw a fixation cross for one second before viewing a string of four words on the computer screen. Participants needed to indicate whether the string of words was a legitimate English sentence (by pressing the “Q” key) or not (by pressing the “P” key) as quickly and accurately as possible. Participants viewed four word sets in a practice round and eighteen word sets in the focal round. In the focal round, participants saw nine illegitimate sentences (e.g. “Not machine working is”), five legitimate sentences unrelated to dominance or security (e.g. “They organized the event”), two legitimate sentences related to security (“Seek shelter during tornadoes” and “Try to comfort her”), and two legitimate sentences related to dominance (“She dominates the tournament” and “The captain gave orders”) in random order. Response times were recorded in milliseconds. Following standard practice, we used only the correct responses and removed responses that had latencies more than three standard deviations away from the means (Belei et al. 2012; Fazio 1990). We averaged and log-transformed the response times for security, dominance, and neutral sentences for the statistical analyses; however, we report the untransformed response-times for ease of interpretation.

Study 2a: Pretest

We conducted a pretest to confirm that security related sentences were indeed perceived to be more associated with security than dominance, while the dominance related sentences were perceived to be associated more with dominance than with security. To test the sentences, we asked participants (N = 90) to indicate how strongly they associated the sentence with “security” and “dominance” on a 5-point scale (1 = Absolutely Not, 2 = Mostly Not, 3 = Somewhat, 4 = Mostly Yes, 5 = Definitely Yes). As expected,
sentences related to dominance were rated higher on dominance \((M = 5.48)\) than sentences related to security \((M = 2.11, t(89) = 20.00, p < .0001)\). Conversely, sentences related to security were rated higher on security \((M = 4.31)\) than sentences related to dominance \((M = 3.02, t(89) = 7.03, p < .0001)\).

**Study 2a: Results**

To test the effects of emotions on response times, we conducted a 2 (sentence type: security, dominance; within-subjects) × 3 (emotion: anger, anxiety, control; between-subjects) repeated-measures ANOVA. We controlled for participants’ average response times on neutral sentences as a proxy for their baseline response speeds.

The results revealed a significant interaction between sentence type and emotion \((F(2, 216) = 4.09, p = .018; \text{see figure 4})\). Specifically, angry participants were faster at responding to dominance related sentences \((M = 1411.73 \text{ milliseconds})\) than participants in the neutral condition \((M = 1553.06 \text{ milliseconds}; F(1, 216) = 6.19, p = .014)\), and marginally faster than participants in the anxiety condition \((M = 1501.99 \text{ milliseconds}; F(1, 216) = 2.93, p = .088)\). On the other hand, anxious participants were faster at responding to security related sentences \((M = 1485.51 \text{ milliseconds})\) than participants in the neutral condition \((M = 1622.72 \text{ milliseconds}; F(1, 216) = 5.33, p = .022)\), and marginally faster than participants in the anger condition \((M = 1579.21 \text{ milliseconds}; F(1, 216) = 2.72, p = .100)\). The results confirm that anger increases the accessibility of dominance whereas anxiety increases the accessibility of security.

**Figure 4:**

Study 2A: Response Time in the Lexical Decision Task

**Study 2b: Method**

One hundred seventy-seven undergraduate students at a Southwestern university in the United States participated in the study for credits. The experiment had a 2 (activated need: dominance vs. security) x 3 (benefit: security vs. dominance vs. neutral) between-subject design. The study contained two parts disguised as unrelated studies. In the first part, participants were randomly assigned to a need condition. We used the scrambled sentence task, an established priming technique, to activate security and dominance needs (Bargh 1999). The task required participants to unscramble a string of five words to create a grammatically correct English sentence. In each condition participants saw twenty sets of words. In the dominance condition, eight of the twenty sentences could be successfully unscrambled to form a sentence related to dominance (e.g. “Captain gave the orders”). In the security condition, eight of the twenty
sentences could be successfully unscrambled to form a sentence related to security (e.g. “Seek shelter during tornadoes”) (see appendix 3). The remaining twelve sentences in each of the conditions were neutral fillers, and were included to reduce suspicion about the priming technique. After completing the scrambled-sentence task, participants completed an ostensibly separate study on reading preferences. As in study 1, participants chose whether to read a technical article about job interviews or a more pleasurable article that contained comedic banter and humorous cartoons. Moreover, as in study 1, participants also read that landing a job benefits dominance, security, or neither, depending on the benefit condition. Finally, after reading their selected article, as in study 1, participants indicated whether they were looking for a job (1 = absolutely not; 7 = absolutely yes).

Study 2b: Pretest

We conducted pretests to confirm that the security sentences were perceived to be more associated with security than dominance, while the dominance sentences were perceived to be more associated with dominance than security. The pretest asked participants (N = 90) to indicate how strongly they associated the sentence with “security” and “dominance” on a 5-point scale (1 = Absolutely Not, 2 = Mostly Not, 3 = Somewhat, 4 = Mostly Yes, 5 = Definitely Yes). We computed the average security and dominance ratings for security related sentences, dominance related sentences, and neutral sentences. As expected, sentences related to dominance were rated higher on dominance (M = 3.75) than sentences related to security (M = 2.02, t(89) = 17.02, p < .001) and neutral sentences (M = 1.58, t(89) = 25.39, p < .001). Conversely, sentences related to security were rated higher on security (M = 3.34) than sentences related to dominance (M = 2.86, t(89) = 4.68, p < .0001) and neutral sentences (M = 1.73, t(89) = 18.44, p < .001).

Study 2b: Results

To test the effects of emotions on self-control, we conducted a 2 (need: security, dominance) × 3 (benefit: security, dominance, neutral) between-subjects logistic regression controlling for whether participants were looking for a job. In line with our predictions, the effect of the need manipulation on self-control depended on whether jobs were associated with dominance or security (Wald χ²(2) = 6.48; p = .039; see figure 5). Participants in the dominance condition were marginally more likely to choose the job interview article over the entertaining article when jobs were described as a means to dominance (36%) rather than security (18%; Wald χ²(1) = 2.89; p = .089). Conversely, participants in the security condition were marginally more likely to choose the job-interview article over the entertaining article when jobs were described as a means to security (29%) rather than dominance (12%; Wald χ²(1) = 3.34; p = .068). In sum, need activation increased self-control when jobs were associated with a consistent benefit rather than an inconsistent benefit.
Collectively, studies 2a and 2b suggest that the effect of an emotion on self-control depends on the instrumentality of the virtuous option in a self-control dilemma (H1), and that the specific needs activated by the emotion mediate this effect. Different emotions activate different needs (study 2a), which in turn increase self-control when the virtuous option benefits the activated need (study 2b). To provide further evidence for the process, in the next study we show that anger and anxiety not only enhance self-control when there is a match between the activated need and the virtuous option, but also impair self-control when there is a match between the activated need and the gratifying option.

**STUDY 3**

Study 3 extends the previous studies by examining how the instrumentality of the gratifying option, rather than the instrumentality of the virtuous option, influences self-control (H2). Because emotions increase the choice of the option that best facilitates the need activated by the emotion, choices in self-control dilemmas should depend not only on the instrumentality of the virtuous option but also the instrumentality of the gratifying option. Specifically, although anger should increase self-control when the virtuous option benefits dominance rather than security, anger should decrease self-control when the gratifying option benefits dominance rather than security. Analogously, anxiety should increase self-control when the virtuous option benefits security rather than dominance but decrease self-control when the gratifying option benefits security rather than dominance. As in the previous studies, study 3 manipulates whether participants feel angry, anxious, or neither before asking them to make a decision in an unrelated self-control dilemma. Unlike the previous studies, study 3 assesses choice in a different type of self-control dilemma: saving vs. spending money on a discretionary purchase.

**Method**

Three hundred fourteen participants recruited through Amazon Mechanical Turk (M-Turk) completed an online survey in return for a small payment. The experiment had a 3 (emotion: anxiety, anger, neutral) x 2 (benefit: security, dominance) x 2 (instrumentality: gratifying option, virtuous option) between-subject design.
The study included two parts disguised as unrelated studies. In part one, participants evaluated a brief video selected to elicit anxiety, anger, or neutral emotion, depending on randomly assigned condition. Participants in the anxiety condition viewed a video clip of a plane crash. The video was about the Air France flight 447 which crashed due to bad weather, and contained a simulation of the chaos in the cockpit, just moments before the crash. In the anger condition, participants viewed a video titled “Making the Bus Monitor Cry.” This video showed school children bullying an old lady. In the neutral emotion condition, participants viewed a video about animals from The National Geographic collection. By using a video to manipulate emotions we try to generalize our effect across a range of different emotion manipulations. This helps us rule out the possibility that priming emotions through an essay writing task may be directly priming information related to dominance and security.

After seeing the video, participants completed the choice task as part of an ostensibly separate study. Participants made the following choice between a relatively virtuous gift-card to a supermarket and a more gratifying gift-card for a pair of Ray-Ban sunglasses:

*Imagine that despite trying to save money, you come across a pair of sunglasses at Ray-Ban's Store that you like far better than the pair you currently own. While you don't need a new pair of sunglasses, you have a strong urge to buy them. Now imagine that you have the opportunity to choose a gift-card either from Ray-Ban or your local supermarket. The gift card to Ray-Ban would allow you to get the sunglasses but the gift-card to your supermarket would help you save money by paying for food and other essential items. Which of these gift cards would you prefer?*

We subsequently manipulated the benefit associated with either the virtuous or the gratifying option (see table 1, and appendix 3). When the benefit was associated with the virtuous option, we described saving money either as leading to dominance (Research suggests that people who save more money appear more confident and powerful, and also command more attention and higher social status among their peers and friends) or security (Research suggests that people who save more money are better prepared for a range of unforeseen risks, are more secure, have fewer health issues and live longer). Conversely, when the benefit was associated with the gratifying option, we described the sunglasses either as benefiting dominance (The sunglasses have a reputation as the most prestigious brand on the market and are a top pick amongst sports and fashion celebrities and jet-setting CEOs alike) or security (The sunglasses have a reputation for offering the best protection from damaging UV-rays that can cause photokeratitis - a temporary but painful “sunburn” of the cornea - and are therefore highly recommended by eye doctors and pilots alike). We measured choice in the self-control dilemma using a 5-point scale ranging from “Definitely the gift card for the sunglasses” to “Definitely the gift card for the supermarket.”

Finally, participants reported their attitudes towards Ray Ban sunglasses on three items (“Liked – Disliked”, “Bad – Good”, “Unfavorable – Favorable”; standardized $\alpha = .97$) on a 7-point scale. Because the likelihood to choose the Ray-Ban gift card should depend on participant’s attitude towards sunglasses, we use the attitude ratings as a covariate in the analysis. Participants also completed several other non-focal measures (e.g., gender, age, etc.) that are reported in online appendix 4.
Table 1: Study 3: Benefits Specified across Conditions

<table>
<thead>
<tr>
<th>Condition</th>
<th>Benefit Associated with:</th>
<th>Gratifying Option (Sunglasses)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Dominance benefit offered by virtuous option</td>
<td><em>People who save more money appear more confident and powerful</em></td>
<td>No benefit mentioned</td>
</tr>
<tr>
<td>2. Security benefit offered by virtuous option</td>
<td><em>People who save more money are better prepared for a range of unforeseen risks</em></td>
<td>No benefit mentioned</td>
</tr>
<tr>
<td>3. Dominance benefit offered by gratifying option</td>
<td>No benefit mentioned</td>
<td><em>The sunglasses have a reputation as the most prestigious brand on the market</em></td>
</tr>
<tr>
<td>4. Security benefit offered by gratifying option</td>
<td>No benefit mentioned</td>
<td><em>The sunglasses have a reputation for offering the best protection from damaging UV-rays</em></td>
</tr>
</tbody>
</table>

Pretests

We conducted a pretest with a separate sample (N = 27) to ensure that participants perceived choosing the gift card for the supermarket as requiring more self-control than the gift card for the sunglasses. Participants indicated when they thought they would receive the benefits of “saving money” and “buying an additional pair of sunglasses” on a 6-point scale (1 = Right away, 2 = Within a week, 3 = In a few weeks, 4 = In a few months, 5 = In a year, 6 = After a few years). They also indicated the self-control required for “saving money” and “buying an additional pair of sunglasses” on a 5-point scale (1= None, 5 = A lot). As expected, saving money was associated with longer-term benefits (M = 4.70) than buying an additional pair of sunglasses (M = 1.44, p < .001), and was also perceived to require greater self-control (M = 4.22 vs. 2.26, p < .001).

We conducted an additional pretest (N = 54) to ensure that the videos effectively elicited anxiety, anger, and neither emotion, respectively. Participants viewed one of the three videos and subsequently indicated how anxious, worried, nervous, angry, furious, frustrated, sad and negative they felt on 9-point scales (1= Not at all, 9 = Very much). Ratings for “anxious,” “worried,” and “nervous” were averaged to form a composite score for anxiety (standardized α = .91). Ratings for “angry,” “frustrated,” and “furious” were averaged to form a composite score for anger (standardized α = .93). Ratings for “negative” and “sad” were averaged to form a composite score for negativity (correlation r = .77).

To examine the effects of emotions on ratings of anger and anxiety, we conducted a 2 (measure: anger, anxiety; within-subjects) × 3 (video: anger, anxiety, neutral; between-subjects) repeated-measures ANOVA. The results confirmed that the videos elicited the expected emotional reactions. Specifically, there was a significant interaction (F(2, 51) = 38.28, p < .001), such that angry participants (M = 5.11) were more angry than anxious participants (M = 2.25; F(1, 51) = 51.17, p < .001) and neutral participants (M = 1.43; F(1, 51) = 69.75, p < .001), whereas anxious participants (M = 4.23) were more anxious than angry participants (M = 3.38; F(1, 51) = 4.69, p < .05) and neutral participants (M = 1.98; F(1, 51) = 27.21, p < .001). Moreover, a between-subjects (video: anger, anxiety, neutral) ANOVA revealed that the video also influenced overall negativity (F(2, 51) = 23.47, p < .001). Participants in the neutral condition felt significantly less negative (Mneutral = 1.89) than those in the anxiety condition (Manxiety = 3.28; F(1, 51) = 8.69, p < .01) and anger condition (Manger = 5.05; F(1, 51) = 45.37, p < .001). However, participants in anger
condition also felt more negative than anxious participants ($F(1, 51) = 17.41, p < .001$). Because this does not affect our findings, we do not discuss it further.

**Results**

To test how the alignment between the participants' emotion and the benefits associated with the options in the choice set influences self-control, we conducted a 3 (emotion: anxiety, anger, control) x 2 (benefit: security, dominance) x 2 (instrumentality: gratifying option, virtuous option) between-subject ANCOVA with participants' attitude towards the sunglasses as a covariate. In line with our predictions, the effect of emotions on self-control depended on which gift-card was associated with an additional benefit as well as whether that benefit promised dominance or security (three-way interaction: $F(2, 301) = 7.06, p = .001$; see figures 6 and 7). To interpret the interaction, we first examine the results when the benefits were associated with the virtuous option, and then examine the results when the benefits were associated with the gratifying option.

Conceptually replicating our previous studies, the data revealed that emotions increased self-control when the virtuous option was associated with a consistent benefit rather than an inconsistent benefit. Specifically, angry participants were marginally more likely to save when savings was linked to confidence and power ($M_{\text{dominance}} = 4.62$) rather than security ($M_{\text{security}} = 4.04; F(1, 301) = 3.26, p = .071$). On the other hand, anxious participants were more likely to save when savings was linked to security ($M_{\text{security}} = 4.53$) rather than power ($M_{\text{dominance}} = 3.94, F(1, 301) = 4.92, p = .027$). The benefit of saving money did not influence self-control for participants in the neutral emotion condition ($M_{\text{security}} = 4.52$ vs. $M_{\text{dominance}} = 4.57$, $F(1, 301) = 0.01$, NS).

Interestingly, and consistent with hypothesis 2, the data revealed the opposite pattern when the benefits were associated with the gratifying option. Angry participants were directionally less likely to save when participants read that the sunglasses offered prestige ($M_{\text{dominance-gratification}} = 4.10$) rather than protection ($M_{\text{security-gratification}} = 4.57; F(1, 301) = 2.21, p = .137$). On the other hand, anxious participants were significantly less likely to save when the sunglasses offered protection ($M_{\text{security-gratification}} = 4.02$) rather than prestige ($M_{\text{dominance-gratification}} = 4.56; F(1, 301) = 4.41, p = .037$). The benefit of purchasing the sunglasses did not influence self-control for participants in the neutral condition ($M_{\text{security-gratification}} = 4.50$ vs. $M_{\text{dominance-gratification}} = 4.61$, $F(1, 301) = .55$, NS).
Discussion

Study 3 provides further evidence for a goal-based model of choice in self-control dilemmas. First, the study replicated the previous studies by showing that negative emotions are less likely to impair self-control when the virtuous option is more instrumental to the need activated by the emotion (H1). The study also extended the previous studies by showing that negative emotions are more likely to impair self-control when the gratifying option is more instrumental to the need activated by the emotion (H2). Because anger
activates a need for dominance, angry consumers are more likely to show self-control when a virtuous option (e.g., saving) benefits dominance rather than security, but less likely to show self-control when a gratifying option (e.g., spending) benefits dominance. Analogously, because anxiety activates a need for security, anxious consumers are more likely to show self-control when a virtuous option (e.g., saving) benefits security rather than dominance, but less likely to show self-control when a gratifying option (e.g., spending) benefits security.

**STUDY 4**

The primary purpose of study 4 was to examine a boundary condition for the finding that self-control is higher when the benefits of a virtuous option are aligned with the needs activated by an emotion. The literature shows that activated needs are less likely to lead to selecting options instrumental to these needs when deciding about the distant future (e.g., saving money a year from now) rather than the present (e.g., saving money today; Carlson et al. 2013; Laran 2010). Consequently, in this study, we examined if temporal distance to the self-control behavior moderates the effect of emotions on self-control. Specifically, we predicted that angry consumers would be more likely to select a virtuous option that benefits dominance in decisions about the present than in decisions about the distant future. Similarly, we predicted that anxious consumers would be more likely to select a virtuous option that benefits security in decisions about the present than indecisions about the distant future.

Study 4 also extended the previous studies in two additional ways. First, we examined whether the effects of emotions would extend to chronic individual differences in emotions in addition to temporarily activated emotions. Individuals vary in the emotions that they chronically experience (e.g., Coleman and Williams 2013). Some people are regularly anxious, others are regularly angry, and others are typically unemotional. Thus, whereas the previous studies attempted to situationally activate anger or anxiety, study 4 measured stable individual differences in the tendency to experience anger and anxiety. We also extended the previous studies by measuring the extent to which participants engage in a virtuous behavior (i.e., how much money they choose to save) rather than by measuring a dichotomous choice between a virtuous and a gratifying behavior (e.g., whether they choose to save or spend).

**Method**

Eight hundred sixty-four participants recruited through Amazon Mechanical Turk completed an online survey in return for a small payment. The survey randomly assigned participants to a condition in a 3 (benefit: security vs. dominance vs. neutral) x 2 (temporal distance to self-control behavior: present vs. future) between-subjects experiment while measuring individual differences in dispositional anger and dispositional anxiety. As in study 1, we only look at the contrast between security and dominance benefits. We expect that the effect of neutral benefits on self-control may lie somewhere between security and dominance.

The study had two parts disguised as unrelated studies. The first part, described as a study on financial decision-making, informed participants that an organization called the “Consumer Federation of America” was encouraging consumers to increase the amount of money they save each year. The organization claimed that one of the most effective ways to save money is to put some or all of one’s tax refund into a savings account. Participants subsequently read that the average American receives $1000 in tax refund, and were asked how much they be willing to put into their savings account if they were to receive a $1000 tax refund. To manipulate whether the decision to save money occurred now or in the future, participants in the present condition were told to imagine that they had just received $1000 in tax refund, whereas participants in the future condition were told to imagine they will be receiving $1000 in tax refund a year from now. Furthermore, to manipulate the benefit associated with exerting self-control, the campaign described savings either as offering a security benefit (Remember, saving money can provide you a lot of security, and give you the ability to protect your family during emergencies), a dominance benefit (Remember, saving money can make you rich and powerful, and give you the ability to lead, or
positively influence others), or neither (neutral benefit) (see appendix 3).

As an ostensibly separate study, participants next read that the researchers were interested in understanding the relation between demographic factors such as age and gender, and personality. As part of the study, they completed a scale measuring trait anxiety (e.g., "I feel difficulties are piling up so that I cannot overcome them;" Gambetti et al. 2012; Spielberger and Sydeman 1994) and another scale measuring trait anger (e.g., "I get annoyed when I am singled out for correction;" Gambetti et al. 2012; Spielberger and Sydeman 1994). The order of the trait scales was counterbalanced. By using trait scales in this study, we further try to generalize our findings from state emotions to trait emotions, and provide evidence that is it is in fact the experience of emotion that underlies our predicted effect. This helps rule out any confounding explanations of how the effects could be attributed to other constructs that may be getting primed by the emotion manipulations. Finally after completing trait emotion scales, participants reported the extent to which they were currently trying to save money on a 5-point scale (1= absolutely not, 5 = definitely yes) and their demographic information. Because the amount of money that participants choose to save in our experiment should depend on the extent to which they are actually trying to save money outside of the lab, we collected this measure to use as a covariate in the analysis.

Results

To assess whether the instrumentality of saving money towards the need activated by anger and anxiety depends on whether the decision takes place immediately or in the distant future, we regressed the amount of the tax refund participants indicated they would save on the manipulated factors, the trait emotion measures, and their interactions. Specifically, we regressed the savings measure on two dummy-coded variables representing the benefit manipulation, one dummy-coded variable representing the temporal distance manipulation, the benefit-by-distance interaction, the mean-centered score on the trait anger scale, the mean-centered score on the trait anxiety scale, and the two and three-way interactions between each trait emotion measure and the variables representing the benefit and distance manipulations controlling for measure order, and the extent to which the participant was trying to save money outside of the study. As predicted, there were two significant three-way interactions (see table 2). Temporal distance moderated the interaction between both the trait anger measure and the benefit manipulation (F(2, 844) = 3.27, p = .039) and the trait anxiety measure and the benefit manipulation (F(2, 844) = 3.22, p = .040; see figures 8 and 9). We used floodlight analysis and the Johnson-Neyman technique (Spiller et al. 2012) to examine the relationship between the trait emotion measures and savings in each of the conditions.
When participants were deciding how much money to save right now, the results conceptually replicated our previous studies. The effect of anger (F(1,844) = 2.82, p = .093) and anxiety (F(1,844) = 10.95, p = .001) on savings was different in the dominance condition than in the security condition. Consistent with H1, participants who scored more than 0.913 standard deviation above average on the anger scale saved significantly more when savings benefited dominance (M = $600) rather than security (M = $506; F(1,844) = 3.85, p = .05; see the left column of figure 8). Furthermore, participants who scored more than 1.0675 standard deviations above average on the anxiety scale saved significantly more when savings benefited security (M = $620) rather than dominance (M = $518; F(1,844) = 3.85, p = .05) (see the left column of figure 9).
On the other hand, however, when participants chose how much money to save in the future, a match between benefit instrumentality and the need activated by the emotion did not increase savings for either anger or anxiety. Consistent with H3, the effect of anger (F(1,844) = 3.23, p = .072) on savings was marginally different in the dominance condition and the security condition, but in the opposite direction as findings from the present condition. There were not any Johnson-Neyman points (when $p = .05$) within the range of anger scores in the sample; however, participants who scored more than 2.69 standard deviation above average on the anger scale saved more when savings benefited security (M = $ 625) rather than dominance (M = $411; F(1,844) = 2.71, p = .10) (see the right column of figure 8). Also consistent with H3, the effect of anxiety on savings was not different in the security and dominance conditions (F(1,844) = 0.01, NS) (see the right columns in figures 9), and hence diverged from findings in the present condition.

Figure 8:
Study 4: Effect of Trait Anger on Savings when it facilitates Security and Dominance Benefits

Figure 9:
Study 4: Effect of Trait Anxiety on Savings when it facilitates Security and Dominance Benefits
Discussion

Study 4 provides further support for our predictions while establishing an important boundary condition. Specifically, the study found that higher scores on a trait emotion measure increased self-control when a virtuous option (saving money) provided a consistent benefit, but only for decisions about the present. When participants decided how much money to save in the future, the instrumentality of saving towards the needs activated by anger and anxiety (dominance and security, respectively) failed to improve self-control. These findings may explain why the effects of emotions on self-control are often weak (Lench et al. 2014). Choice in self-control dilemmas are likely to reflect weak effects if the temporal distance to the behavior, or the atypicality of the context more generally, is not accounted for (Laran 2010; Laran et al. 2008). Finally, this study affirms the robustness of our predictions across different ways of operationalizing emotions and self-control. First, we show that our findings extend beyond state emotions (e.g. emotions primed through videos and essays) to trait emotions as well. Second, we also show that the effect of need instrumentality influences not only the choice between a gratifying and a virtuous option, but also influences the extent to which a consumer pursues a virtuous behavior.

GENERAL DISCUSSION

One concern with the trend towards society becoming increasingly anxious and angry is that negative emotions could impair consumers’ self-control, which could lead to even more intense feelings of anger and anxiety, not to mention disappointment and regret. Our studies, however, illustrate that the effects of negative emotions on decisions in self-control dilemmas are more complicated and nuanced than generally believed. Rather than unilaterally impairing self-control, the effect of negative emotions on self-control depends on the consumer’s active needs, as well as the instrumentality of the gratifying and the virtuous options towards those needs. Although the need for hedonic pleasure does tend to reduce self-control (Tice et al. 2001), the other needs elicited by a negative emotion may enhance or impair self-control, depending on whether or not the specific benefits of the virtuous and the gratifying options in the choice set are instrumental to those needs. Anxiety, which activates a need for security, increases self-control more when the virtuous option in a self-control dilemma provides a security benefit than when it provides a dominance benefit. Anger, on the other hand, activates a dominance need, and is consequently more likely to increase self-control when the virtuous option provides a dominance benefit than when it provides a security benefit. Study 1, for example, shows that anxious students are more likely to read a virtuous article if it helps them get a secure job than if it helps them get a prestigious job. Angry students, on the other hand, are more likely to read the article if it will help them get a prestigious job than if it will help them get a secure job.

Studies 2, 3, and 4 provide evidence of the process and boundary conditions for this effect. Study 2 demonstrates that anxiety activates a security need, while anger activates a dominance need. In turn, these activated needs increase self-control when the benefit of the virtuous option is consistent with the need. Study 3 shows that just as increasing the instrumentality of the virtuous option improves self-control, increasing the instrumentality of the gratifying option impairs self-control. Specifically, anxiety enhances self-control when the virtuous option offers a security rather than a dominance benefit, but also impairs self-control when the gratifying options offers a security rather than dominance benefit. Similarly, anger enhances self-control when the virtuous option offers a dominance rather than a security benefit, but also impairs self-control when the gratifying options offers a dominance rather than a security benefit. Finally, study 4 demonstrates an important boundary condition. Need instrumentality guides decisions about the present but not decisions about the distant future. Specifically, for immediate decisions, anxiety enhances self-control when the virtuous option benefits security rather than dominance and anger enhances self-control when the virtuous option benefits dominance rather than security. However, this effect does not extend to decisions about the distant future.
Implications

Our findings highlight that self-control cannot be simply conceptualized as a tradeoff between immediate benefits and long-term benefits. The benefits provided by the virtuous option are realized in the future (e.g. studying helps students land a future job), but they also facilitate specific higher-order needs, such as security (e.g. finding a stable and secure job) and dominance (e.g. finding a prestigious and influential job). Therefore, understanding the effects of any factor that influences the consumer’s needs, such as emotions, on self-control, requires identifying the specific needs that the factor activates, and whether or not these needs are consistent with the perceived benefit of the virtuous and gratifying options in the self-control dilemma.

Our findings also have implications for emotional consumers and people who advise them. Emotional consumers can improve self-control by reminding themselves about the consistent rather than the inconsistent benefits associated with making a virtuous choice. For example, anxious students would be more likely to study if they think about how getting good grades will lead to greater safety and control, whereas angry students would be more likely to study if they think about how good grades will lead to power and prestige. Similarly, policy makers and businesses in the position of giving advice (e.g. gym trainers, or financial advisors) could benefit from customizing their encouragement to emphasize benefits consistent with the dominant emotion that their customers are experiencing. For instance, bankers trying to encourage consumers with low financial literacy to learn more about financial products, such as credit cards, should emphasize the security features offered by credit cards to anxious consumers, but emphasize the status or prestige associated with high-end credit cards to angry consumers. Similarly policy makers, federal tax agencies, and employers that nudge their workers to save money for retirement, or commit their tax returns towards savings, may be more effective if the nudges are more aligned with the emotions that the workers’ are experiencing. Relatedly, past research has found that when companies invest into accessing consumers’ emotions, they are better able to position their products by emphasizing benefits that are aligned with the consumers’ emotion profiles, and are subsequently able to increase sales (Kumar and Shah 2011).

Finally, we also suggest that just as we used the goal-based choice model to examine the effect of emotions on choice in self-control dilemmas, the model can also help integrate much of past literature on how contextual factors effect self-control. Specifically, the goal-based choice model suggests that four factors influence whether or not a consumer exerts self-control when faced with such a dilemma. The first is the strength of the consumer’s hedonic need (N1). Because the gratifying option in self-control dilemmas better facilitates hedonic needs than the virtuous option (GB1 > VB1), increasing the activation of hedonic needs increases the likelihood of selecting the gratifying option, whereas decreasing the activation of hedonic needs decreases the likelihood of selecting the gratifying option. Indeed, research shows that increasing the desire to feel better tends to impair self-control (Cryder et al. 2008; Fishbach and Labroo 2007; Garg et al. 2007; Tice, Bratslavsky, and Baumeister 2001), whereas reducing the activation of visceral hedonic cravings, such as hunger and sexual desire, increases self-control (Van Boven and Loewenstein 2003; Loewenstein 1996; Xu, Schwarz, and Wyer 2015).

A second factor that influences self-control is the relative instrumentality of the gratifying and virtuous options towards the consumer’s hedonic need. While gratifying options, by definition, offer stronger hedonic benefits compared to virtuous ones (i.e., GB1 > VB1), the magnitude of the difference in instrumentality may vary. For example, individuals may either believe that indulging will offer a small, temporary boost to their mood or believe that it will make them exuberant (i.e., GB1 can vary in magnitude). Alternatively, individuals may either believe that exerting self control will be a very painful sacrifice or believe that it will be a pleasurable act of frugality (i.e., VB1 can vary in magnitude). Consistently, the literature demonstrates decreasing the instrumentality of the gratifying options towards hedonic needs increases self-control. For example, mood freeze manipulations (Manucia, Baumann, and Cialdini 1984), which make consumers believe that gratifying won’t offer hedonic benefits (i.e., reducing GB1), increase self-control (Tice et al. 2001). Conversely, increasing the virtuous option’s instrumentality towards hedonic
needs also increases self-control. For instance, consumers are more likely to delay gratification, when the anticipation of it is pleasurable (Hoch and Loewenstein 1991; Loewenstein 1987; Nowlis, Mandel, and McCabe 2004).

A third factor that influences self-control is the strength of consumers’ other (i.e., non-hedonic) needs. In our example, John wants to experience pleasure (N1), but he also wants to be secure (N2) and dominant (N3). Enhancing (or suppressing) the activation of these alternative needs should increase (or decrease) self-control, depending on whether (or not) the virtuous option better satisfies these needs than the gratifying option (i.e., if GBn < VBn). For instance, because selecting the virtuous option is better than the gratifying option at helping consumers restore control, avoid future regret, and reduce opportunity costs, activating the need for control, and regret avoidance tends to improve self-control (Cutright and Samper 2014; Frederick et al. 2009; Hoch and Loewenstein 1991; Patrick, Chun, and Macinnis 2009; Spiller 2011).

The fourth factor that also influences self-control is the relative instrumentality of the gratifying (i.e., GB2, GB3, etc.) and virtuous options (i.e., VB2, VB3, etc.) towards these other needs (Fishbach and Choi 2012; Zhang, Fishbach, and Kruglanski 2007). Increasing the instrumentality of the virtuous option (i.e., increasing VBn) should improve self-control, whereas increasing the instrumentality of the gratifying option (i.e., increasing GBn) should hurt self-control. For example, when consumers seek security, they should be less likely to overspend if saving helps prepare for emergencies, but not if saving helps buy the biggest house on the block.

Limitations and Future Research

Although we propose a general model of how negative emotions influence decisions in self-control dilemmas, we focus on the effects of two specific negative emotions, anger and anxiety, and two specific benefits, dominance and security. One opportunity for future research will be to investigate the effects of other emotions and other benefits. For example, a goal-based model of choice predicts that disgust, which activates a need to avoid contaminants (Rozin et al. 2008), should improve self-control by decreasing the likelihood that consumers eat unhealthy foods but impair self-control by decreasing the likelihood that consumers exercise in a crowded gym. Similarly, a goal-based model would also predict that embarrassment, which activates a need to be accepted or reintegrated into a group (Keltner and Anderson 2000), should improve self-control when in-group members typically behave virtuously but decrease self-control when in-group members typically gratify.

Successful regulation of self-control typically requires more than a single virtuous decision. It requires making virtuous decisions consistently over a period of time (Campbell and Warren 2015; Vosgerau et al. 2016). Thus, another limitation of our research is that it examines the effects of emotions on single decision rather than on how emotions influence the more complex sequence of decisions that ultimately determines consumers’ success in regulating their self-control. Because the effects of incidentally manipulated emotions tend to be ephemeral, it would be difficult to examine how incidental emotions influence a series of self-control choices over time. Nevertheless, there may be an opportunity to test the how chronic individual differences in emotions, as measured in study 4, influence sequences of decisions involving self-control.

Accounting for the interplay between the specific needs activated by an emotion and the benefits of options in self-control dilemmas may offer a key to understanding the complex and seemingly inconsistent effects of emotions on self-control. We encourage emotion researchers to continue to think about the needs activated by specific emotions, self-control researchers to think about the benefits linked to the specific gratifying and virtuous options in a choice set, and consumer researchers to think about how to leverage both of these effects to help improve the decisions of marketers, consumers, and policy makers.
DATA COLLECTION INFORMATION

The first author supervised the collection of data for the first two studies by staff at the Mays Business School Behavioral Lab, and collected data for the last two studies using the Qualtrics panel in March of 2015 through October of 2016. Data for study 1 and 2b was collected from November 2015 through February 2016, while data for study 2a was collected in October and November of 2016. These data were analyzed by the first author with the support of the second author.
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WHY DO FRONTLINE EMPLOYEES SPEAK UP ON BEHALF OF CUSTOMERS? THE INFLUENCE OF SUPERVISORS VERSUS COWORKERS AND THE ROLE OF INTRAPERSONAL FACTORS

Gabriel Gazzoli, Alex Zablah, and Tom Brown, Oklahoma State University

ABSTRACT

Customer-Focused Voice - employees' discretionary expression of constructive ideas that challenge the status quo with the aim to benefit the customer - has been shown to improve service effectiveness. While the importance of supervisors in promoting employee voice is widely-acknowledged in the literature, the relative impact of coworkers on voice behaviors is still unclear, and the role that employee factors play in motivating distinct types of voice behaviors remains largely unexplored. To address these knowledge gaps, this research builds on Social Cognitive Theory to propose that supervisor support, coworker relationship quality, and intrapersonal employee factors combine to influence the extent to which frontline employees engage in CFV - an important marketing construct that has received little attention to date. Contrary to common wisdom, the results of two multiwave, multisource field studies reveal that coworkers and not supervisors influence CFV and do so through their effect on psychological safety. Moreover, the results indicate that perspective taking self-efficacy - a previously unexamined construct in the voice literature - acts as a critical moderator to determine the extent to which front-line employees engage in CFV and the impact of CFV on manager ratings of employee performance.

Service firm executives may not always understand what features connote with high quality to consumers, what attributes a service must have in order to meet consumer needs... Therefore, top managers' understanding of the consumer may depend largely on the extent and types of communication received from customer-contact personnel...

Zeithaml et al. (1998)

Frontline employees (FLEs) are often the first and only point of contact between the customer and the company (Hartline, Maxham III, & McKee 2000). The constant interactions with customers allow FLEs to gather competitive information about customers’ likes and dislikes about the firm’s service offerings. Hence, they are uniquely positioned to make important contributions to the improvement of customer service. Indeed, the service-dominant logic considers employees as operant resources with the potential to serve as a key source of knowledge and value creation (Vargo & Lusch 2008, Lusch & Vargo 2006). Thus, customer-centered firms must establish cultural norms in which FLEs are customer advocates (Shah et al. 2006); that is, firms should redesign their service development programs to capture FLEs potential of being knowledge brokers (Ye, Marinova, & Singh 2012, Lages & Piercy 2012). For example, Amazon CEO Jeff Bezos leaves an empty seat at meetings for employees who want to represent the “customer voice” (DeRose & Tichy 2013). Starbucks assigned 48 employees to engage with customers on their MyStarbucksIdea blog and move ideas upward (Ye et al., 2012). McDonald’s and Singapore Airlines developed the “Egg McMuffin” and “Book the Cook” services respectively through suggestion involvement programs that rely heavily on frontline service workers (Lovlock & Wirtz 2007). The Mayo Clinic of Scottsdale allows nurses to question any doctor’s diagnosis and decisions through the “Plus One” protocol (DeRose & Tichy 2013). Coincidentally, the hospital was named by Consumer Reports (2012) the safest teaching hospital in the U.S. Indeed, empirical research has linked employee voice - the discretionary expression of constructive, work-related ideas that challenge the status quo for the betterment of the organization - to organizational and frontline learning (Edmondson 1996; 1999; Ye et al. 2012), creativity and innovation (Schepers et al. 2016), and service effectiveness (Lam & Mayer, 2014). A lack of voice has been implicated in service delivery
disasters ranging from serious medical errors (IOM 2000, Tangirala & Ramanujam 2008) to airline crashes (Merriti & Helmreich 1996). In sum, the benefit to firms in encouraging FLEs to speak up on behalf of their customers has been alluded to in research on service quality (Zeithaml et al. 1998), sales management (Meunier-FitzHugh & Piercy 2006, Hughes, Le Bon, & Rapp 2013) service complaint and recovery management (Luria, Gal, & Yagil 2009; Van der Heijden et al. 2013).

Despite the benefits of voice behaviors, employees are often reticent to share new ideas and proposed different processes out of fear that their views may upset superiors and thus be detrimental to their standing in the firm (Burris 2012). For this reason, the literature to date ascribes a particularly critical role to managers or supervisors as facilitators of voice behaviors (e.g., Detert & Burris 2007; Liu et al. 2010). Our literature review uncovered only four studies highlighting the importance of peers, a finding which belies the widely-accepted notion that colleagues “make the place” and thus have a profound impact on the social fabric of the work environment (Schneider 1987).

To begin to redress these important knowledge gaps, this research builds on Social Cognitive Theory (Bandura 1986) to advance research on the role of FLEs in service innovation and improvement. In the present research, we test a model that traces the indirect, moderated influence of supervisor support and coworker relationship quality on customer-focused voice (CFV) – FLEs discretionary expression of constructive ideas that challenge the status quo aimed at improving the customer experience (Lam & Mayer, 2014) and FLEs performance. Specifically, we propose that supervisor support and coworker relationship quality influence CFV indirectly through their effect on psychological safety, defined here as workers’ perception about whether it is safe for them to express ideas that run counter to prevailing methods or assumptions for managing the customer experience within their organizations (Kahn, 1990). Finally, we argue that these indirect effects are contingent upon perspective taking self-efficacy (PTSE) – a factor relevant to CFV, but not other types of voice behaviors. PTSE refers to the FLEs’ evaluations of their own ability to adopt customers’ viewpoints in an attempt to understand their needs and preferences (Grant & Berry, 2011; Parker & Axtell, 2001). We test the preceding ideas across two field studies using multisource, multiwave data provided by FLEs and their supervisors in a healthcare context.

This research makes three important contributions to the literature on employee voice. To the best of our knowledge, this study is the first to examine the joint influence of supervisor- and coworker-related factors on voice behaviors (see Table 1). Our study thus offers insight necessary for improving theoretical understanding of how different actors in employees’ social environment influence employee voice. Second, our study represents one of only few investigations on voice from a marketing perspective and consequently is the first to identify and empirically examine the impact of PTSE on voice behaviors. This contribution is particularly noteworthy because it underscores that different resources may be necessary for promoting specific types of employee voice behaviors. Third, this research introduces Social Cognitive Theory (Bandura 1986) as a framework useful for examining the interplay between the social environment (supervisor support and coworker relationship quality), employee cognitive factors (psychological safety and PTSE), and employee voice behaviors (namely CFV). In so doing, our research represents a first step towards integrating the relatively robust but thus far theoretically disjointed body of work on employee voice.

Customer-Focused Voice

Marketing research on service innovation and work improvement has experienced a rapid growth in the decade. Three research streams have emerged. The first stream focuses on frontline employees’ participation in service and product development, mainly through formalized innovation programs (e.g., Umashankar, Srinivasan, & Hindman 2011, Cadwallader et al. 2010, Melton & Hartline 2010, 2013). The second stream of research has concentrated on individual and contextual factors that foster employee creativity (Goudarzi et al. 2011, Kelley, Longfellow, & Malehorn 1996, Coelho, Augusto, & Lages 2011, Coelho et al. 2010). The third stream investigates how and when FLEs communicate their insights to the

In the present research, we define CFV as a discretionary expression of constructive ideas that challenge the status quo aimed at improving the customer experience. Given this definition, three aspects of CFV are worth underscoring. First, we can categorize and describe CFV as both an extra-role behavior (Van Dyne et al. 1995) and as a “challenging OCB,” a specific type of organizational citizenship behavior (Van Dyne & LePine 1998). Second, implicit in the definition of CFV is the idea that it is an inherently risky behavior because it entails challenging the status quo (Detert & Burris 2007; Morisson 2011). Finally, CFV focuses on FLE behaviors that aim to innovate and enhance the customer service experience, and as such has important implications for marketing effectiveness. In particular, due to their boundary-spanning role, FLEs are in a unique position to identify service design inefficiencies, collect customer feedback, observe the behavior of other employees, and gain an understanding of the firms’ frontlines from an insider’s vantage point. Such knowledge and insights are fundamental sources of a market orientation and competitive advantage (Kohli & Jaworski 1990; Slater & Narver 1995; Vargo & Lusch 2008); thus, they are crucial for improving customer satisfaction and only becomes known if FLEs decide to engage in voice behaviors.

A Model of Customer-Focused Voice Grounded in Social Cognitive Theory

Social Cognitive Theory (SCT) relies on the notion of triadic codetermination to predict human behavior and argues that an individual’s cognitive (intrapersonal) attributes, environment, and behaviors exert an interactive, reciprocal causal influence on each other (Bandura 2012). SCT thus rejects the notion that either environmental forces or dispositional factors alone determine human behavior. While balanced in its consideration of environmental and dispositional factors, the theory acknowledges that individuals are volitional actors who want to “intentionally make things happen through their own actions” (Ng & Lucianetti 2015, p. 1). Importantly, SCT does not contend that the proposed triadic, reciprocal influence flows occur simultaneously, but rather that they manifest over time and that the constraints and opportunities afforded by the situation determine the magnitude of the triadic relationships at any given instance (Bandura 1999).

Furthermore, SCT ascribes a particularly important role to two specific cognitive or intrapersonal factors as determinants of human behavior: self-efficacy and outcome expectations (Bandura 1986). Self-efficacy refers to an individual’s assessment of his or her own ability to perform a given behavior or achieve a given outcome (Bandura, 1986). Self-efficacy beliefs are highly task-specific and thus vary across different activity domains (Bandura 2012; Ng & Lucianetti 2015). Prior research concludes that self-efficacy is a highly reliable motivator of the work-related behaviors that contribute to employee performance (Stajkovic & Luthans 1998). In contrast, outcome expectations captures an individual’s assessment of the personal (image enhancement) or professional (work achievement) consequences associated with the enactment of a particular behavior (Bandura 1997). As volitional actors, individuals engage in behaviors they believe have desirable outcomes or, at a minimum, are devoid of negative consequences. Consistent with this perspective, empirical research has argued and found that outcome expectations are a proximate determinant of goal-directed work behaviors (e.g., Wang 2015).

We build on these basic precepts of SCT to ground our proposed conceptual model, graphically depicted in Figure 1. As the Figure illustrates, the proposed model allows a role for all three elements of triadic determination considered important in SCT; that is, the proposed model considers the interplay between intrapersonal or cognitive factors (psychological safety and PTSE), the environment (supervisor support and coworker relationship quality), and individual behaviors (FLE customer-focused voice). Moreover, the proposed model examines two specific types of causal linkages considered important in SCT: those between social and cognitive factors, and those between cognitive and behavioral factors (Bandura 1999). We describe the model and its correspondence to SCT in the balance of this section.
Figure 1. Theoretical Model. Study 2 replicates Study 1 and extends it by considering the moderating effect of Perspective Taking Self-Efficacy.

Supervisor support and coworker relationship quality represent important aspects of FLEs’ social environment and serve as the exogenous constructs in the model. We define the former as FLEs’ perception of the extent to which their supervisors care about them and value their contributions (Eisenberg et al. 2002), and the latter as FLEs’ perception of the degree to which their exchanges with peers are enriching, harmonious, satisfying, and inspire trust (Fernet et al. 2010). Moreover, we propose that these aspects of FLEs’ social environment have an immediate impact on FLEs’ perceptions of psychology safety, which refers to the extent to which FLEs perceive that it is safe for them to express ideas that run counter to prevailing methods or assumptions for managing the customer experience within the organization (Kahn 1990). Within the SCT framework, psychological safety is thus a cognitive factor that captures an outcome expectation (Ashford et al. 1998); namely, FLEs’ belief that speaking out on behalf of customers (i.e., engaging in voice behaviors) will, at a minimum, not be detrimental to their standing in the firm.

Consistent with research grounded in SCT, we also posit that psychological safety is a proximate determinant of CFV (e.g., Wang 2015) – defined here as FLEs’ discretionary expression of constructive ideas aimed at improving the customer experience (Lam & Mayer 2014). In turn, we are argue that CFV predicts manager-rated FLE performance, which refers to the extent to which an FLE fulfills the core or technical requirements of the job (Borman & Motowidlo 1997). We further posit that PTSE (another cognitive factor) moderates the psychological safety-CFV relationship. Within our theoretical framework, PTSE is a task-specific, self-efficacy belief that captures FLEs’ evaluations of their own ability to adopt customers’ viewpoints in an attempt to understand their needs and preferences (Grant & Berry 2011; Parker & Axtell 2001). It is important to underscore that PTSE refers to a self-efficacy belief about professional capabilities, i.e., the FLE’s ability to step into customers’ shoes. Our focus on PTSE is partly guided by the work of Parker (1993), who convincingly argues that it is of greater theoretical value to examine the impact of workers’ professional efficacy beliefs on voice behaviors than to consider the impact of workers’ beliefs about their ability to engage in voice behaviors on their performance of such behaviors. Building on this theoretical backdrop, we now proceed to develop our study hypotheses.
Hypothesis Development

FLEs’ Social Environment Influences CFV via its Effects on Psychological Safety

Prior research identifies psychological safety as a proximate driver of voice behaviors because employees’ failure to speak up is most often attributed to their fear that “they may be punished for raising sensitive issues or for threatening the status quo” (Morrison et al. 2011, p. 184). Such fear is also relevant in the case of CFV because when FLEs challenge the status quo on behalf of customers, they are not only suggesting new ideas for improving the customer experience, they are also criticizing current policies and practices implemented by their own supervisors and suggesting changes that may not be appreciated by fellow coworkers (Burris 2012). Consistent with SCT, we thus propose that – as volitional actors concerned with maximizing their own welfare – FLEs are more likely to engage in CFV when they expect that doing so will not encourage an outcome that is to their detriment (e.g., managerial reprisal or coworker ostracizing) (Bandura 1997). Said differently, we posit that FLEs are more likely to express dissenting but constructive views and opinions about how to serve customers when they believe that it is socially and professionally safe for them to do so.

Moreover, consistent with SCT’s precept that the environment is a causal determinant of intrapersonal, cognitive factors (Bandura 1999), we predict that the social environment shapes FLEs’ perceptions about whether or not it is safe for them to speak up about ways in which to enhance the customer experience. In particular, we hold that supervisor support and coworker relationship quality – indicators of the nature of FLEs’ relationship with the two critical actors in their social environment – determine their psychological safety perceptions. This proposition is consistent with the view that mutual respect, trust, and supportive relationships with important others in the work environment serve to shield employees from negative consequences such as embarrassment or punishment (Kahn 1990; Edmondson 1999).

Prior research ascribes substantial importance to the role of supervisors as influencers of employee voice behaviors. This importance is often attributed to the fact that supervisors “have authority to administer rewards and punishments, and this power over subordinates’ pay, promotions, and job assignments makes leaders’ actions highly salient as cues for behavior” (Detert & Burris 2007, p. 870). Therefore, when supervisors signal that they are receptive to employees’ opinions, subordinates are likely to perceive less risk (more safety) related to the performance of behaviors that challenge the status quo. Supportive supervisors commonly provide such signals; that is, such signals are inherent to supervisors who commonly express concern about their employees’ welfare and convey to subordinates that their work contributions are valued (Eisenberg et al. 2002). Consequently, consistent with prior empirical findings (e.g., Ashford et al. 1998; Miceli & Near 1992; Detert & Burris 2007; Walumbwa & Schaubroeck 2009), we propose that supervisor support increases FLE psychological safety, which in turn increases CFV.

H1a: Supervisor support has an indirect, positive effect on CFV via psychological safety.

As we alluded to earlier, coworkers also represent an important element of the work environment and, as such, can influence FLEs’ perceived psychological safety and, by extension, CFV. Specifically, we hold that, collectively, coworkers are a powerful actor in the work environment with the ability to influence the positive and negative outcomes individual FLEs experience. For instance, in some firms, peers complete a performance evaluation for fellow coworkers (Peretz & Fried 2012; Bettenhausen & Fedor 1997). As yet another example, consider what would happen to an FLE who engages in CFV to suggest a new scheduling practice that provides for better customer service but inconveniences or requires an adjustment to the daily routines of other FLEs. It is not difficult to imagine that in an unsupportive environment, fellow coworkers would likely scorn such an FLE and he or she would ultimately face the choice of either enduring an unpleasant work environment or finding new employment. Thus, while the literature has emphasized the role of supervisors (“holders of authority”) in promoting perceived psychological safety, we hold that coworkers also play an important role in that regard. Specifically, we posit that high-quality coworker relationships improve FLEs’ psychological safety perceptions because they foster a sense of trust and
mutual respect (Dutton & Heaphy 2003; Wrzesniewski et al. 2003). In so doing, such relationships encourage the open sharing of ideas by limiting the extent to which FLEs must concern themselves with potential deleterious responses by coworkers (e.g., shaming or marginalizing) to any constructive suggestions or opinions they bring forth (Carmeli & Gittell 2009). Empirically, this proposition is generally supported by the work of Kahn (1990) and Carmeli et al. (2009), who find that coworker relationships contribute positively to employees’ psychological safety perceptions. Therefore, given our aforementioned expectation of a positive effect of psychological safety on CFV and the now-proposed positive impact of coworker relationship quality on psychological safety, we expect the following.

**H1b**: Coworker relationship quality has an indirect, positive effect on CFV via psychological safety.

**Psychological Safety Influences Manager-Rated FLE Performance via its Effects on CFV**

A recurring theme in voice research is that employees often do not share constructive criticism for fear of being penalized, particularly by those who evaluate them (Morrison et al. 2011, p. 184). It is partly for this reason that the literature suggests outcome expectations, in the form of psychological safety, are a critical determinant of voice behaviors (Detert & Burris 2007). In our current context, this implies that FLEs are more likely to engage in CFV when they believe that their supervisors will not rate their performances poorly in retaliation for being vocal about ways in which to improve the customer experience. Thus, an FLE who feels psychologically safe would expect, in a worst-case scenario, their CFV behaviors to have no effect on managers’ ratings of their performance. Inherent in the preceding argument is the assumption that FLEs have a choice about whether to engage in CFV; this assumption is consistent with both SCT’s notion of individuals as volitional actors and the view that CFV is an extra-role behavior (Van Dyne et al. 1995). However, we argue that it is possible, if not likely, that by inducing this particular extra-role behavior, psychological safety can indeed have a positive effect on manager ratings of FLE performance. Van Dyne & LePine (1998, p. 118) explain this possibility as follows.

...even though the lack of formal rewards is a key definitional component of extra-role behavior, our results suggest that discretionary behavior is rewarded with high performance ratings. Perhaps there is “justice” for those who engage in extra-role behavior. Alternatively, it is possible that extra-role behavior is an impression management technique that leads to higher ratings. . . . Conversely, perhaps organizational and/or group norms cause supervisors to expect, recognize, and reward extra-role behavior even though it is not formally rewarded.

Based on the preceding line of theorizing, we thus propose that CFV – an extra-role behavior motivated by FLEs’ perceptions of psychological safety – should have a positive impact on manager-rated FLE performance. This expectation is supported by an experimental study that found that organizationally focused voice behaviors are positively related to employee performance appraisals (Whiting et al. 2008). In sum, given the proposed effect of psychological safety on CFV and of the latter on manager ratings of FLE performance, we hypothesize the following.

**H2**: Psychological safety has an indirect, positive effect on manager-rated FLE performance via CFV.

**The Moderating Role of Perspective taking Self-Efficacy**

Our first two hypotheses argue that an FLE’s outcome expectations, as manifest in the psychological safety construct, are a critical determinant of CFV. We argue here that the extent to which this occurs will depend partly upon FLEs’ evaluations of their own ability to adopt customers’ viewpoint (Grant & Berry 2011; Parker & Axtell 2001), a phenomenon we call “perspective taking self-efficacy” (PTSE). As noted earlier, PTSE captures FLEs’ task-specific, self-efficacy beliefs about their ability to step
into customers’ shoes in order to understand their needs and preferences. Importantly, the notion of self-efficacy is not only central to SCT (Bandura 2012), but has also been identified as an important driver of employee voice. In particular, a study by Parker (1993) finds a positive effect of professional self-efficacy beliefs (FLEs’ confidence in their ability to perform tasks central to their jobs) on FLE voice behaviors. In this same study, however, the author examines but fails to find support for the interaction between FLEs’ self-efficacy beliefs and perceived job control in prediction of voice.

Our focus on PTSE in this study – as opposed to other types of efficacy beliefs – is grounded in the recognition that extant research has established a link between employee perspective taking and the frequency with which they engage in altruistic behaviors toward customers (Axtell et al. 2007). Given that the ultimate purpose of CFV is to help customers, it follows that FLEs should be more likely to engage in CFV when they perceive that they have the ability to step into customers’ shoes (i.e., when FLEs are “high” on their PTSE). We next expand on this expectation and discuss its implications for the study’s indirect effects.

The literature suggests that an important reason why employees choose to remain silent is because they feel they are not capable of influencing the situation (Van Dyne et al. 2003) or that they do not have polished ideas or concrete solutions to offer (Detert & Edmondson 2011). PTSE helps overcome these barriers to CFV because FLEs who are confident in their ability to understand customers are also likely to perceive that they have the type of insight necessary for identifying and proposing changes to the customer experience that others (managers, coworkers) are likely to find useful (cf. Galinsky et al. 2008; Mohrman et al. 2001). Said differently, PTSE enhances FLEs’ sense that they have something of value to contribute as it relates to enhancing customer outcomes. Consequently, we predict that FLEs who perceive it is safe for them to engage in CFV will be more likely to do so when their PTSE is high rather than low.

Importantly, the proposed interaction between psychological safety and PTSE in prediction of CFV has meaningful implications for the indirect effects established in Hypotheses 1 and 2. Specifically, the proposed interaction modifies a linkage in our model (safety → CFV) that forms part of the three indirect effects hypothesized to occur in this study. Thus, by extension, we also predict that each of the proposed indirect effects will be contingent on PTSE; that is, we anticipate that the proposed indirect effects will be stronger in magnitude when PTSE is high and weaker in magnitude when it is low. We express this expectation formally as follows.

H3a: The positive indirect effect of supervisor support on CFV via psychological safety is stronger (weaker) when PTSE is high (low).

H3b: The positive indirect effect of coworker relationship quality on CFV via psychological safety is stronger (weaker) when PTSE is high (low).

H3c: The positive indirect effect of psychological safety on manager-rated FLE performance via CFV is stronger (weaker) when PTSE is high (low).

Job Tenure as a Control Variable

Research suggests that employee voice is influenced by individual difference variables, including demographic characteristics (Morrison 2011). In fact, prior research suggests that employees’ job tenure might be a particularly relevant predictor of voice behaviors because employees who are new to the job may not feel secure or knowledgeable enough to make suggestions that challenge the status quo (Detert & Burris 2007; Milliken et al. 2003). Hence, we include FLEs’ job tenure as a control variable in our model and use it to predict all three of the study’s endogenous constructs.
Study 1

We conducted two studies to test the research hypotheses. Study 1 serves as a baseline investigation of the complementary indirect effects of supervisor support (H1a) and coworker relationship quality (H1b) on CFV, and of the indirect effect of psychological safety on manager-rated employee performance (H2). Study 2 provides yet another test of the proposed indirect effects and, more importantly, considers whether PTSE alters the magnitude of the indirect effects (i.e., tests the conditional indirect effect hypotheses, H3a, H3b, and H3c). We carried out both studies in Brazilian hospitals. Thus data collection involved surveying nurses and their supervisors. Despite the similarities in context, it is worth underscoring that Study 1 and Study 2 differ in two important ways. The nurses in Study 2 are substantially more educated and have longer tenures in their respective firms (100% have at least a bachelor’s degrees and an average job tenure of nearly 11 years) than those in Study 1 (92% hold two-year nursing degrees and have an average job tenure of less than five years). These differences may influence the extent to which FLEs engage in voice behaviors, and thus, the two-study design allows us to gauge the generalizability of our findings across FLEs who differ in terms of important attributes.

Design, Sample, and Procedure

We collected lagged data, over three different periods, from nurses and their supervisors at a Brazilian hospital specializing in psychiatric services. A week before data collection started, hospital administrators sent a memorandum to all departments endorsing the research project and requesting their voluntary participation. We distributed 168 study packages – which included participant instructions, the survey instrument, and an empty envelope – to nurses employed across 12 departments in the hospital. The instructions asked the participants to mail their answers directly to the researchers using the pre-addressed stamped envelopes. The survey used in the first data collection period included the measures for supervisor support, co-worker relationship quality, and psychological safety. We employed the same procedures to administer a second survey to the nurses about three weeks later; that survey included the measure for CFV. Finally, one week after the second survey, we contacted the supervisors of the 12 hospital departments and asked them to rate their employees using our performance measures. This three-wave procedure resulted in 124 matched (Wave 1, Wave 2, and supervisor) cases, for an effective response rate of 73%. Of the nurses included in the sample, 59% are female, 92% hold a nursing license (equivalent to a two-year associate of arts degree), and their average job tenure is slightly over four years.

Measures

We measured all study constructs using Likert-type scales (anchored by strongly disagree, strongly agree) taken or adapted from prior research. Appendix A provides a list of all measurement items employed in the study, including their sources and number of scale endpoints. Given that we collected the study data in Brazil, we administered the survey instrument in Portuguese after engaging in an English-Portuguese back-translation process (Brislin, 1986). We also examined the measures from an “insider” and “outsider” perspective to ensure the items’ semantic equivalence (Schaffer & Riordan 2003). Specifically, we asked four healthcare professionals, including one doctor and three nurses, and two bilingual professionals outside of the healthcare industry to evaluate the meaning of each measurement item. This process revealed that both insiders and outsiders interpret the items similarly, further confirming the generalizability of the measurement items to the Brazilian healthcare context.

In order to evaluate the properties of the measurement scales, we subjected the items to a confirmatory factor analysis (CFA) in Mplus 7.1. The CFA results suggest that the measurement model provides a good fit to the data (Hu & Bentler 1999; $\chi^2 = 209, 142$ d.f., $p < .01$; comparative fit index (CFI) = .93; standardized root mean square residual (SRMR) = .07; root mean square error of approximation (RMSEA) = .06). The measurement model’s good fit and an analysis of the model’s residuals both support the conclusion that the measures are unidimensional in nature (Anderson & Gerbing 1988). Importantly, additional evidence provided by or derived from the CFAs suggests that the resulting measures are psychometrically sound. More specifically, as Table 2 reveals, the study’s measures are reliable, as
indicated by composite reliabilities (CR) in excess of .80 and average variances extracted (AVE) all in excess of 50% (Fornell & Larcker 1981; Gerbing & Anderson 1988). Furthermore, the measures appear to possess convergent validity, a conclusion supported by the finding that all factor loadings are significant and that the scales exhibit high levels of internal consistency (Anderson & Gerbing 1988; Fornell & Larcker 1981). Finally, the measures also possess discriminant validity, as the AVE for each of the constructs is substantially greater than its largest, error-corrected shared variance (LSV) with any of the other constructs in the model. (See Table 2 for full details regarding construct properties, including descriptive statistics, correlations, and summary information about measure quality.)

<table>
<thead>
<tr>
<th>Construct</th>
<th>Mean</th>
<th>SD</th>
<th>AVE</th>
<th>LSV</th>
<th>CR</th>
<th>Study 1 Correlations</th>
<th>Study 2 Correlations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Supervisor Support</td>
<td>4.23</td>
<td>0.91</td>
<td>63%</td>
<td>5%</td>
<td>0.87</td>
<td>0.86</td>
<td>3.94 1.03</td>
</tr>
<tr>
<td>2. Coworker RQ</td>
<td>6.16</td>
<td>0.98</td>
<td>52%</td>
<td>29%</td>
<td>0.81</td>
<td>0.81</td>
<td>3.88 0.87</td>
</tr>
<tr>
<td>3. Psychological Safety</td>
<td>5.44</td>
<td>1.34</td>
<td>62%</td>
<td>29%</td>
<td>0.83</td>
<td>0.81</td>
<td>3.78 1.08</td>
</tr>
<tr>
<td>4. Customer-Focused Voice</td>
<td>5.57</td>
<td>0.96</td>
<td>51%</td>
<td>8%</td>
<td>0.83</td>
<td>0.83</td>
<td>3.69 0.72</td>
</tr>
<tr>
<td>5. PTSE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Manager-Rated Perf</td>
<td>5.92</td>
<td>1.11</td>
<td>86%</td>
<td>10%</td>
<td>0.95</td>
<td>0.94</td>
<td>3.81 0.71</td>
</tr>
<tr>
<td>7. Job Tenure</td>
<td>4.45</td>
<td>1.92</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes. Study 1: n = 124; Study 2: n = 133. RQ = relationship quality; PTSE = Perspective taking self-efficacy. SD = standard deviation; AVE = Average Variance Extracted; LSV = largest shared variance; CR = composite reliability; α = Cronbach’s alpha. Study 1 (2) correlations are reported below (above) the diagonal. For study 1 (2) correlations with absolute values greater than .18 (.17) are statistically significant (p<.05, two tailed).

Analytical Approach

We estimated the proposed indirect (H1 and H2) effect hypotheses using path analytic, ordinary least squares (OLS) based techniques as implemented in Hayes’ (2013) PROCESS macro to (1) fit path analytic models that serve to estimate the proposed indirect effects and their corresponding bias-corrected bootstrapped confidence intervals (5,000 draws), and (2) employed the fixed effects approach to clustering to control for the potential impact of nesting on the indirect effect estimates that involve the manager-rated employee performance measure.

Results

The results of our analyses, summarized in Table 3, reveal that coworker relationship quality is a significant predictor of psychological safety (β = .52, p < .01), while supervisor support (β = .14, p > .10) and the control variable “job tenure” are not (β = .01, p > .10). Psychological safety (β = .19, p < .01) and job tenure (β = .11, p < .05) were both found to be significant predictors of CFV. Moreover, we found that CFV (β = .22, p < .05) is a significant predictor of manager-rated employee performance, while job tenure is not (β = .03, p > .10). Finally, the results indicate that the models explain a significant proportion of the variance in the dependent variables: psychological safety = 19%, CFV = 11%, and manager-rated employee performance = 37%.
Table 3
Test of the Indirect Effect Hypotheses (H1-H2) in Study 1

<table>
<thead>
<tr>
<th>Dependent Variables →</th>
<th>Psychological Safety</th>
<th>Customer-Focused Voice</th>
<th>Employee Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Predictors</strong></td>
<td><strong>Psychological Safety</strong></td>
<td><strong>Customer-Focused Voice</strong></td>
<td><strong>Employee Performance</strong></td>
</tr>
<tr>
<td>Supervisor Support</td>
<td>.14 (.14)</td>
<td>-.07 (.11)</td>
<td>--</td>
</tr>
<tr>
<td>Coworker Relationship Quality</td>
<td>.52 (.13)**</td>
<td>.02 (.11)</td>
<td>--</td>
</tr>
<tr>
<td>Psychological Safety</td>
<td>--</td>
<td>.19 (.07)**</td>
<td>.11 (.07)</td>
</tr>
<tr>
<td>CFV</td>
<td>--</td>
<td>--</td>
<td>.22 (.10)*</td>
</tr>
<tr>
<td>Job Tenure</td>
<td>.01 (.06)</td>
<td>.11 (.04)*</td>
<td>.03 (.05)</td>
</tr>
</tbody>
</table>

**R-squared**

<table>
<thead>
<tr>
<th></th>
<th>Psychological Safety</th>
<th>Customer-Focused Voice</th>
<th>Employee Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>19%</td>
<td>11%</td>
<td>37%</td>
</tr>
</tbody>
</table>

**Indirect Effects**

H1a: Supervisor Support → CFV (95% BCB-CI) .03 (LB = -.0166, UB = .1263)
H1b: Coworker Relationship Quality → CFV (95% BCB-CI) .10* (LB = .0060, UB = .2630)
H2: Psychological Safety → Employee Perf (95% BCB-CI) .04* (LB = .0002, UB = .1239)

More importantly, as is also summarized in Table 3, the results support two of the three proposed indirect effect hypotheses. Specifically, contrary to H1a, supervisor support was not found to have a significant indirect effect on CFV (ab = .03, p > .10). However, in support of H1b, the results indicate that coworker relationship quality has a positive indirect effect on CFV that is mediated by psychological safety (ab = .10, p < .05). Finally, in support of H2, the results indicate that psychological safety exerts a positive, indirect effect on manager-rated employee performance via CFV (ab = .04, p < .05).

**Discussion of Study 1 Findings**

The study’s results support a majority of the linkages and hypotheses proposed in the theoretical model. It is important to underscore that the results also reveal that (1) supervisor support (β = -.07, p > .10) and coworker relationship quality (β = .02, p > .10) do not have direct effects on CFV, and (2) psychological safety does not have a direct effect on employee performance (β = .11, p > .10) (see Table 3). These additional results thus suggest that the proposed mediators fully account for the effect of the independent variables on the model’s dependent variables. Moreover, the finding that supervisor support does not have an indirect effect on CFV via psychological safety (H1a) is particularly noteworthy. Statistically, this finding can be attributed to the lack of a significant relationship between supervisor support and psychological safety (p > .10). Importantly, post-hoc analyses reveal that the supervisor support-psychological safety relationship is statistically significant (β = .40, p < .01) when coworker relationship quality (our other predictor of psychological safety) is excluded from the model. Hence, these results lead us to conjecture that coworker relationship quality may be a more proximate predictor of CFV than supervisor support. We explore this possibility further, and the proposed moderating role of PTSE, in Study 2.
Study 2

Design, Sample and Procedure

We collected lagged data over three different periods from nurses and their supervisors at a Brazilian hospital specializing in oncological services. A week before data collection started, hospital administrators sent emails to 209 nurses in the hospital requesting their voluntary participation. The primary investigator attended shift meetings, hand delivered a survey with measures for the Wave 1 constructs (supervisor support, coworker relationship quality, psychological safety, and PTSE) to all nurses at the meetings, and requested that it be returned in person by the end of the day. Approximately three weeks later, we employed the same procedures to administer a second survey to the nurses that included the CFV measure. Finally, about one week after the second survey, we contacted the nurses’ supervisors and asked them to rate their employees using our performance measures. This three-wave procedure resulted in 133 matched cases across 20 hospital departments (Wave 1, Wave 2, and supervisor), for an effective response rate of 64%. Of the nurses included in the sample, 80% are female, 100% hold a least a bachelor’s degree, and their average job tenure is about 11 years.

Measures

We measured all study constructs using the same scales as in Study 1, with some slight variations in the scale endpoints and number of scale positions. Appendix A once again provides a list of all measurement items employed in the study, including a description of the scales. In order to evaluate the properties of the measurement scales, we once again subjected the items to a CFA in Mplus 7.1. The CFA results suggest that the measurement model provides a good fit to the data (Hu & Bentler, 1999; \( \chi^2 = 324, 215 \text{ d.f.}, p < .01; \text{CFI} = .94 \text{ SRMR} = .06; \text{RMSEA} = .05 \)). As before, the results of the CFA or statistics computed from the CFA support the conclusion that the measures (1) are unidimensional in nature (Anderson & Gerbing, 1988), (2) are reliable (Fornell & Larcker 1981; Gerbing & Anderson 1988), (3) possess convergent validity (Anderson & Gerbing 1988), and (4) exhibit discriminant validity (Fornell & Larcker 1981). Refer to Table 2 for full details regarding construct properties, including descriptive statistics, correlations, and summary information about the quality of the measures.

Results

As is summarized in Table 4, the results of our analyses reveal that coworker relationship quality (\( \beta = .24, p < .05 \)) is a significant predictor of psychological safety, while supervisor support (\( \beta = .09, p > .10 \)) is not. Furthermore, the results indicate that psychological safety (\( \beta = 1.11, p < .01 \)) and PTSE (\( \beta = -.89, p < .05 \)) interact (\( \beta = .31, p < .01 \)) to predict CFV such that psychological safety is positively related to CFV when PTSE is high but unrelated to CFV when PTSE is low (see Figure 2). Moreover, the results support the conclusion that CFV is a significant predictor of manager-rated employee performance (\( \beta = .28, p < .05 \)). In addition, our control variable, job tenure, is a significant predictor of psychological safety (\( \beta = -.02, p < .05 \)) but is unrelated to both CFV (\( \beta = -.01, p > .10 \)) and manager-rated employee performance (\( \beta = .01, p > .10 \)). Finally, the results indicate that the explanatory variables account for a significant proportion of the variance in the dependent variables: psychological safety = 9%, CFV = 20%, and manager-rated employee performance = 43%.

As Table 4 suggests, the results offer support for two of the three proposed indirect effect hypotheses. In particular, contrary to H1a, we find that supervisor support does not have a significant indirect effect on CFV (\( ab = .01, p > .10 \)). In contrast, and consistent with H1b, the results indicate that coworker relationship quality does have a positive indirect effect on CFV that is mediated by psychological safety (\( ab = .02, p < .05 \)). Finally, as proposed in H2, the results indicate that psychological safety exerts a positive, indirect effect on manager-rated employee performance via CFV (\( ab = .03, p < .05 \)).
Importantly, the data provide support for two of the three proposed conditional indirect effect hypotheses, thus confirming the relevance of PTSE as a moderator in this context. Specifically, contrary to H3a, we find that the indirect effect of supervisor support on CFV is nonsignificant both when PTSE is high ($ab = -.01, p > .10$) and when it is low ($ab = .03, p > .10$). However, consistent with H3b, we find that the indirect effect of coworker relationship quality on CFV is positive and significant when PTSE is high ($ab = .07, p < .05$) but nonsignificant when it is low ($ab = -.02, p > .10$). Finally, as proposed in H3c, the data indicate that the indirect effect of psychological safety on manager-rated employee performance is positive and significant when PTSE is high ($ab = .08, p < .05$) but nonsignificant when it is low ($ab = -.02, p < .05$).

**Discussion of Study 2 Findings**

Study 2 strongly affirms the generalizability of the Study 1 findings and offers convincing evidence in support of the proposed moderating role of PTSE. As was the case in Study 1, the results indicate that the proposed mediators fully account for the effect of the independent variables on the model’s dependent variables (i.e., model predictors have an indirect but no direct effect on the dependent variables). Moreover, the results once again reveal that supervisor support does not have an indirect effect on CFV via psychological safety (H1a). Statistically, this finding can once again be attributed to the lack of a significant relationship between supervisor support and psychological safety ($p > .10$). As was the case in the first study, post hoc analyses confirm that the supervisor support-psychological safety relationship is statistically significant, albeit marginally ($\beta = .16, p < .10$), when coworker relationship quality is excluded as a predictor of psychological safety from the model. These results provide further support to our Study 1 conjecture that coworker relationship quality should perhaps be construed as a more proximate predictor of CFV than supervisor support. We discuss the theoretical and practical implications of this and our other research findings next.

**Theoretical Implications**

**Prior Research May Overstate the Influence of Supervisors on Employee Voice**

To date, the literature on voice has largely proceeded from the perspective that given their authority to administer rewards and punishment, supervisors play a pivotal role in promoting employee voice behaviors. As a result of this focus, the impact of coworkers on voice has been largely unexamined in the literature. Thus, the research reported herein not only answers Morrison’s (2014) call for scholars to
examine the impact of coworkers on voice, but also presents the first empirical investigation of the joint
effects of supervisors and coworkers on employee voice behaviors (i.e., the effects of each actor on voice
while controlling for the influence of the other). Importantly, the results of our two studies challenge the
conventional wisdom that supervisors are the most important contributors to employee voice. Specifically,
our data reveal that while both supervisor support and coworker relationship quality are significantly related
to voice in a bivariate sense, only coworker relationship quality is a significant predictor of voice when
both factors are considered jointly. Although this finding does not imply that supervisors are unimportant
as it relates to employee voice, it does suggest that coworkers are a more proximate predictor of voice
because they play a larger role in shaping FLEs’ perceptions about whether it is safe for them to speak up
with their ideas for improving the customer experience. Said differently, it appears that FLEs’ sense of
psychological safety comes more from those with whom they “go to battle” each day than from supervisors
and, as a result, it is coworkers who have the strongest impact on voice behaviors. This finding is consistent
with prior research on leadership that notes that supervisors are only able to establish strong bonds with a
few key subordinates (Graen 1976) and that consequently employees’ relationships with their peers takes
on added importance as they try to determine what behaviors are supported in the work environment. At a
minimum, the results of our study underscore the need for future research to reconsider the widely held
assumption that supervisors are the only social actors that matter when it comes to employee voice
behaviors. Given our findings, we conjecture that supervisors may play a role in promoting voice behaviors
not by making employees’ feel safe to speak up, but rather by creating an environment that leads to the
establishment of strong, mutually trusting relationships among coworkers.

All Employee Voice Behaviors are Not Created Equal

With one exception (Lam & Mayer, 2014), the literature has been primarily preoccupied with
developing insight related to voice behaviors that focus on improving organizational and group processes.
That is, ours is only the second study to explore the notion of customer-focused voice (CFV) and thus to
consider the process that leads employees to engage in the open expression of ideas aimed at improving
the customer experience. The importance of CFV to firm performance is nearly self-evident and thus the lack
of attention it has received in the literature is surprising. Given the constant interactions that FLEs have
with customers, they are in a unique position to gather the type of marketing intelligence necessary for
enhancing the customer experience and, by extension, customer and firm outcomes. Indeed, when
employees speak up on behalf of their customers they add knowledge and insights to the organizational
learning. Moreover, knowledge and insights are fundamental sources of a market orientation (Kohli &
Jaworski 1990; Slater and Narver 1995), and competitive advantage (Vargo & Lusch 2008).

In this research, we acknowledge that CFV is similar to other voice behaviors in many ways. For
that reason, our proposed model adopts several of the same social-cognitive factors that have been examined
in prior research to predict CFV. Our research also recognizes, however, that proposals for improving the
functioning of an organization or work team will differ in substance from those that aim to promote
improvements in the customer experience. Accordingly, an employee’s willingness to engage in the
different types of voice behaviors is likely to be contingent upon whether they possess the insight necessary
for actually making constructive contributions. Hence, in this research we proposed that perspective taking
self-efficacy – FLEs’ confidence in their ability to understand customers’ needs and preferences – is an
intrapersonal factor that is particularly important for promoting CFV but not other types of voice behaviors.

Our results provide strong support for the role of PTSE as a moderator of the relationship between
psychological safety and CFV. Specifically, the results reveal that psychological safety influences CFV
when PTSE is high but not when PTSE is low. Importantly, this finding also conditions the two significant
indirect effects identified in the study such that: (1) coworker relationship quality has a positive effect on
CFV through psychological safety only when PTSE is high, and (2) psychological safety has a positive
effect on manager-rated employee performance only when PTSE is high. These results thus suggest that
feeling safe to speak up is, in itself, not enough to motivate FLEs to engage in CFV. Rather, FLEs only
engage in CFV when they are confident in their ability to understand customers and, by extension, are sure that their ideas and suggestions can truly help improve the customer experience. Overall, our research affirms Parker’s (1993) contention that examining the influence of germane, professional self-efficacy beliefs on employee voice behaviors is of great theoretical value and also answers recent calls for research to identify factors that condition the relationship between psychological safety and voice behaviors (Edmondson & Lei 2014).

**Practical Implications**

The study’s results also offer several important implications for managers. First, they suggest that coworkers play an integral role in promoting CFV. As such, to ensure that employees engage in CFV, it is not enough for managers to be supportive of subordinates or for them to suggest that they are “open” to new ideas on how to improve. Rather, FLEs need to be in an environment in which coworkers share a sense of mutual respect and trust so that FLEs will feel “safe enough” to express their concerns. Importantly, the results do not suggest that managers do not have a role to play in promoting CFV; they merely imply that their role is different from that suggested in prior research. Specifically, our findings imply that to promote voice within their units and teams, supervisors should strive to create an environment in which team members trust and mutually respect each other. Toward that end, managers should embed themselves within teams so they can develop a firsthand understanding of team dynamics and about how teams develop over time (Webber & Webber 2015). Moreover, managers should select new supervisors and FLEs based on their potential and ability to work well in teams and contribute to a positive group dynamic. Once recruited, orientation and training efforts should promote strong interpersonal bonds among peers, and performance evaluations should include group performance metrics. Perhaps most importantly, however, although managers should strive to create a collaborative environment where coworkers respect and trust each other, they should also cultivate an environment in which healthy disagreement can produce new ideas.

Second, our results suggest that organizational efforts to build strong relationships among coworkers is not enough to promote CFV. That is, strong bonds are needed, but CFV is far more likely when employees are confident they have the knowledge necessary to contribute valuable ideas for improving the customer experience. Such confidence comes from an employees’ ability to step into customers’ shoes and intimately understand their needs and preferences. Hence, to ensure employees speak up with constructive ideas, managers should recruit and train for PTSE. With that goal in mind, research grounded in SCT suggests that supervisors can improve FLEs’ perspective taking self-efficacy by (1) providing the FLE with confirmation that he or she is capable of adopting customers’ perspectives; (2) helping FLEs cope with the stress that may accompany efforts to engage in customer perspective taking; (3) providing FLEs with the opportunity to vicariously learn, either through observation or by hearing of others’ experiences, how to engage in customer perspective taking; and (4) providing FLEs with the opportunity to experience successful perspective taking experiences.

Finally, the results reveal that managers are sensitive and receptive to voice behaviors as, across both studies, managers rate employees who engage more frequently in CFV more highly. This is an encouraging finding because it suggests managers recognize the potential value of CFV for enhancing customer outcomes. Extending this line of reasoning to the firm level, this result thus implies that firms should, within reason, encourage FLEs to challenge the status quo as the benefits of doing so are at least apparent to frontline managers. This recommendation is consistent with the general guidelines proffered by IPA (2014), a non-profit consultancy in the UK that noted the following after completing an audit of employment practices at the National Health Service (2014, p. 20).

*Frontline employees have an immense amount of knowledge of the services they deliver and the needs of their patients... “you get the best ideas from the people on the ground. The experts in most areas are the people carrying out the work – the professionals and those in*
support roles.” They will have ideas every day as to how to improve their services and patient care.

Limitations and Future Research

The findings and limitations of this research suggest several avenues for future research. First, although our two studies support identical statistical conclusions and we conducted them in FLE populations that differ along important dimensions (education levels and job tenure), both investigations were conducted in a hospital setting. As such, the study’s findings may not generalize to other contexts. Future research might thus attempt to replicate our findings in other settings. For example, it would be interesting to examine whether our finding regarding the relative importance of coworkers vis-à-vis supervisors for promoting voice holds in frontline occupations where team members are in competition with one another (e.g., sales). It might also be fruitful to determine whether our results on the importance of perspective taking self-efficacy hold in situations where FLE job tasks are more mundane or less complex. Second, as noted earlier, future research should consider the extent to which FLEs’ relationships with customers contributes to CFV. We expect that customer relationships do play a role in promoting CFV, although not likely mediated by psychological safety. As such, exploratory research designed to uncover “how” customer relationships may contribute to CFV seems particularly warranted. Finally, in our first study (less education, lower tenure FLEs), we find that increasing job tenure leads to a decrease in perceived psychological safety and CFV, while in our second study (more education, longer tenure FLEs) we find that increasing job tenure is associated with a higher incidence of CFV. Future research should thus seek to unravel the relationship between tenure and CFV, perhaps with a focus on how context determines that relationship.
REFERENCES


### APPENDIX A

#### Measurement Items

<table>
<thead>
<tr>
<th>Scale</th>
<th>Std. Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Study 1</td>
</tr>
<tr>
<td><strong>Supervisor Support</strong> (Adapted from Vinokur, Schul, and Caplan 1987; Study 1 and 2: 1 = Never, 5 = Always)</td>
<td></td>
</tr>
<tr>
<td>How frequently your supervisor provides you with encouragement?</td>
<td>.93</td>
</tr>
<tr>
<td>How frequently your supervisor provides you with useful information?</td>
<td>.81</td>
</tr>
<tr>
<td>How frequently your supervisor shows that he/she cares about you as a person?</td>
<td>.82</td>
</tr>
<tr>
<td>How frequently your supervisor makes you feel you can rely on him/her?</td>
<td>.57</td>
</tr>
<tr>
<td><strong>Coworker Relationship Quality</strong> (Taken from Fernet, Gagne, and Austin 2010; Study 1: 1 = SD, 7 = SA; Study 2: 1 = SD, 5 = SA)</td>
<td></td>
</tr>
<tr>
<td>Currently, my relationship with my colleagues at work is harmonious.</td>
<td>.72</td>
</tr>
<tr>
<td>Currently, my relationship with my colleagues at work is enriching.</td>
<td>.66</td>
</tr>
<tr>
<td>Currently, my relationship with my colleagues at work is satisfying.</td>
<td>.67</td>
</tr>
<tr>
<td>Currently, my relationship with my colleagues at work is trustful.</td>
<td>.82</td>
</tr>
<tr>
<td><strong>Psychological Safety</strong> (Adapted from Morrison et al., 2011; Study 1: 1 = SD, 7 = SA; Study 2: 1 = SD, 5 = SA)</td>
<td></td>
</tr>
<tr>
<td>In this hospital I feel safe to develop and make recommendations concerning issues that affect my patients.</td>
<td>.70</td>
</tr>
<tr>
<td>In this hospital I feel safe to speak up and get others involved in issues that affect my patients.</td>
<td>.92</td>
</tr>
<tr>
<td>In this hospital I feel safe to communicate opinions about patient issues with others even if that opinion is different and others disagree.</td>
<td>.72</td>
</tr>
<tr>
<td><strong>Customer-Focused Voice</strong> (Adapted from Maynes et al., 2013; Study 1: 1 = SD, 7 = SA; Study 2: 1 = SD, 5 = SA)</td>
<td></td>
</tr>
<tr>
<td>I frequently make suggestions about how to improve methods or practices that aim to improve patient well-being.</td>
<td>.63</td>
</tr>
<tr>
<td>I often suggest changes to patient-related projects with the aim to provide them a better service.</td>
<td>.70</td>
</tr>
<tr>
<td>I often speak up with recommendations about how to fix patient-related problems.</td>
<td>.80</td>
</tr>
<tr>
<td>I regularly propose ideas for new or more effective work methods that aim to improve patient satisfaction.</td>
<td>.80</td>
</tr>
<tr>
<td>I frequently make suggestions about how to do things in new or more effective ways with the aim to improve patient treatment.</td>
<td>.60</td>
</tr>
<tr>
<td><strong>Perspective Taking Self-Efficacy</strong> (Adapted from Grant and Berry, 2011; DiGiunta et al., 2010; Study 2: 1 = Not Well at All, 5 = Very Well)</td>
<td></td>
</tr>
<tr>
<td>How well can you recognize your patients’ needs.</td>
<td>--</td>
</tr>
<tr>
<td>How well can you take the perspective of your patients.</td>
<td>--</td>
</tr>
<tr>
<td>How well can you imagine how patients are feeling.</td>
<td>--</td>
</tr>
<tr>
<td>How well can you recognize when patients need your help.</td>
<td>--</td>
</tr>
<tr>
<td><strong>Employee Performance</strong> (Adapted from Williams and Anderson, 1991; Study 1: 1 = SD, 7 = SA; Study 2: 1 = Much Worse than Expected, 5 = Much Better than Expected)</td>
<td></td>
</tr>
<tr>
<td>Adequately completes assigned duties.</td>
<td>.94</td>
</tr>
<tr>
<td>Fulfills responsibilities specified in job description.</td>
<td>.98</td>
</tr>
<tr>
<td>Performs tasks that are expected by me.</td>
<td>.86</td>
</tr>
</tbody>
</table>

#### Measurement Model (CFA) Fit Statistics

<table>
<thead>
<tr>
<th>χ² (df)</th>
<th>Study 1</th>
<th>Study 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>209 (142)</td>
<td>.93</td>
<td>.94</td>
</tr>
<tr>
<td>324 (215)</td>
<td>.06</td>
<td>.06</td>
</tr>
<tr>
<td>.07</td>
<td>.05</td>
<td></td>
</tr>
</tbody>
</table>

**Notes:** Std. Loadings = standardized loadings; SD = strongly disagree; SA = strongly agree.
THE MEANING OF MATERIALIZING THOUGHTS INTO PHYSICAL OBJECTS IMPACTS EVALUATIONS

Tae Woo Kim, Indiana University, Adam Duhachek, Indiana University, Pablo Briñol, The Ohio State University and Richard E. Petty, The Ohio State University

ABSTRACT

Across four studies, the authors show that physically safeguarding (marginalizing) written thoughts leads to amplification (attenuation) of the thoughts in mind, as if, the thoughts are material objects. Meaning associated with one’s physical action on thoughts was shown to influence one’s confidence in thoughts, which in turn, validate or invalidate the thoughts. Findings are consistent with other works on embodiment and metacognition, suggesting the meaning-dependent relationship between the body and mind. How thought materialization paradigm can help consumer managing their wanted or unwanted thoughts is discussed.

Imagine Mike whose mind is full of healthy thoughts such as fun of exercise or the benefits of healthy foods. Because positive (negative) thoughts about an object was shown to lead to favorable (unfavorable) attitude toward it (Killeya & Johnson, 1998), Mike is likely to engage in exercising or consuming healthy foods as long as he maintains positive thoughts about exercise or healthy foods. In contrast to this, he is as likely to be distracted by opposing thoughts potentially detrimental to health such as the pain in the muscle caused by exercise or tempting yet fattening foods. A common strategy employed by people when facing unwanted thoughts could be to ignore or suppress the thoughts. Alternatively, individuals can reappraise their unwanted thoughts in order to portray them in a more positive light (Gross, 1998). However, these approaches were shown to be difficult to implement and can even amplify the unwanted thoughts (Gawronski, Deutsch, Mbirkou, Seibt, & Strack, 2008; Wegner & Erber, 1992).

In contrast to these effortful mental activities, could unwanted thoughts possibly be thrown away and wanted thought be safeguarded as if thoughts are entities that have physical body? According to the dualistic western philosophical tradition (Cottingham, 1999), treating thoughts as if they are physical entity would seem inconsequential. However, recent research across multiple disciplines indicates the possibility of treating thoughts as if they are physical entities. For example, linguistic research suggests that thoughts are treated materialistically in our mind; “ran out of thoughts”, “try to pack more thoughts into fewer words” (Lakoff & Johnson, 1980, Landau, Meier, & Keefer, 2010). Similarly, thoughts are “lost”, “stolen”, “borrowed”, “transferred”, or “shared”, every day (Briñol et al., 2013)

As an empirical demonstration that thought can be materialized, Briñol et al. (2013) showed that writing down thoughts about an object (e.g., Mediterranean foods) and safeguarding (vs. disposing) the thoughts led to a favorable evaluation of the object. However, previous study (Sparrow, Liu, & Wegner, 2011) has also documented conceptually contradictory results from a similar experiment. Specifically, Sparrow et al. (2011) showed that saving (vs. deleting) written facts from a computer decreased recall of the written contents in a memory paradigm.
The primary objective of the current research is to reconcile these conflicting findings. According to the theories of metacognition (Jost, Kruglanski, & Nelson, 1998; Petty, Briñol, Tormala, & Wegener, 2007), how an action shapes our mind can depend on the meaning the action has to the performer. Therefore, we propose that the same action can produce opposite results, as observed in Briñol et al. (2013) and Sparrow et al. (2011), depending on the meaning ascribed to the action. Further, based on the self-validation hypothesis (Briñol, Petty, & Wagner, 2009; Petty, Briñol, & Tormala, 2002), we predict that the meaning of action can influence evaluation of thoughts via change in the level of thought confidence.

**Materializing of Thoughts**

In an initial research, Briñol et al. (2013) demonstrated that writing down positive (negative) thoughts about an attitude object (e.g., Mediterranean food) and keeping it safe in one’s pocket strengthened the positive (negative) evaluation toward the object. In contrast to this, disposing of the written thoughts into a trash bin attenuated or even reversed the effect such that originally generating negative (vs. positive) thoughts about the object resulted in a more positive evaluation toward the object after the disposing action was conducted. This phenomenon was termed as “thought materialization” because the way thoughts remain within or disappear from the mind resemble how a physical object remain within or disappear from a space when it is safeguarded or disposed of.

From the perspective of embodied and situated cognition (Anderson, 2003; Barsalou, 1999, 2008; Gibbs, 2005; Wilson, 2002), the action of safeguarding or disposing is conceptually similar to approach or avoidance behavior (Priester, Cacioppo, & Petty, 1996). Because previous studies showed that approach (vs. avoidance) behavior leads to a favorable evaluation of the approached object (Chen & Bargh, 1999; Labroo & Nielsen, 2010; Slepian, Young, Rule, Weisbuch, & Ambady, 2012), the thought materialization phenomenon is (Briñol et al., 2013) is consistent with previous embodiment studies.

However, there is an important theoretical distinction between the thought materialization phenomenon (Briñol et al. 2013) and the aforementioned embodiment studies on approach and avoidance behavior. In the previous studies, evaluation was measured on the object that was approached or avoided. In contrast to this, in Briñol et al. (2013), thoughts about an object were generated and action was conducted on the *thoughts* rather than an object. In the subsequent evaluation of the object, it was shown that whether thoughts are safeguarded or disposed influence evaluation of the original object in opposite ways. To our best understanding, no previous embodiment research has examined whether conducting an action on thoughts can influence the evaluation of the original object from which the thoughts are derived. Perhaps this novel and intriguing phenomenon can be understood from an extended cognition perspective (Clark, 2008; Clark & Chalmers, 1998; Wilson, 2002; Wilson & Clark, 2009) which posits that our cognition can be extended into the physical entities we physically interact with (e.g., an iPhone) and the change in the physical status of the entity (e.g., broken or lost) can influence our mind.

In contrast to Briñol et al. (2013), Sparrow et al. (2011) found that writing down memorable facts (e.g., “An ostrich’s eye is bigger than its brain”) and then saving (deleting) the written contents into a computer impaired (enhanced) the recall of the contents. Because this experiment is conceptually and procedurally similar to Briñol et al. (2013), one might predict that
saving (deleting) written contents would actually enhance (impair) the memory recall. However, this was not the case. The primary purpose of the current research is to reconcile the seemingly contradictory findings documented between Briñol et al. (2013) and Sparrow et al. (2011). The reason why the two studies produced contradictory results could be perhaps because the participants in Briñol et al. (2013) wrote internally generated thoughts whereas participants in Sparrow et al. (2011) wrote externally provided facts. Alternatively, Briñol et al. (2013) measured the evaluation of the object from which thoughts are generated whereas Sparrow et al. (2011) measured the extent of memory recall. Another possibility is that hand-writing on a piece of a paper (Briñol et al. 2013) and type-writing on a computer (Sparrow et al. 2011) caused the differences (Muller & Oppenheimer, 2014).

However, we suggest that the contradictory result was due to the differences in the meanings associated with the action. In particular, the action of saving written contents in Sparrow et al. (2011) could have been interpreted by participants that the contents do not need to be memorized, leading to decrease in recall, whereas the same saving action in Briñol et al. (2013) could have meant that the thoughts are important, leading to favorable evaluation of the object from which the thoughts are generated. In other words, we hypothesize that the reason why the two studies produced contradicting results from a similar set of action is because the performer of the action construed the meaning of action differently.

The Importance of Meaning in Embodied Experiences

Prior research in embodied cognition (Anderson, 2003; Barsalou, 1999, 2008; Gibbs, 2005; Wilson, 2002) has found a range of interesting effects which support the notion that cognition is grounded on our bodily states and sensorimotor experiences. As an instance, it was shown that smile-like facial expression induces positive feelings (Strack, Martin, & Stepper, 1988). More recent array of embodiment research has shown that the meaning of action plays a critical role in embodiment processes (Briñol & Petty, 2008). For example, smiling was shown to increase positive feelings only when the smile was interpreted as a result of happiness but not when it was intended to cause happiness (Labroo, Mukhopadhyay, & Dong, 2014). In the same vein, Adam and Galinsky (2012) showed that wearing a white lab coat increased attention ability for a visual task only when the lab coat was framed as a doctor’s coat (vs. a painter’s coat). Additionally, other well-established relationship between the body and the mind such as body posture and confidence (Carney, Cuddy, & Yap, 2010) or approach behavior and liking (Chen & Bargh, 1999) was shown to be moderated by the subjective meaning of the action (Cesario & McDonald, 2013; Eder & Rothermund, 2008). These findings suggest that one’s naïve theory or subjective meaning related to an action determines how the action affects our mind and influences downward judgments.

Naïve theory or subjective meaning not only influences how physical experiences shape our mind but also how mental experiences shape our mind. For example, the feeling of ease in memory retrieval was shown to validate the recalled contents due to the prevalent naïve theory about the availability heuristic (Schwarz et al., 1991). However, more recent research has also shown that naïve theories about the meaning of ease is malleable and the effect of ease on validation could reverse when ease is framed as having a negative connotation such as low intelligence (Briñol, Petty, & Tormala, 2006; see also Labroo & Kim, 2009). Just as the mental experience of ease can have different subjective meanings, cognitive depletion can influence self-regulation or attitude differently depending on the subjective meaning ascribed to the experience
Aforementioned findings suggest that same physical or mental experience can produce dramatically outcomes depending on the subjective meaning or naïve theories that individuals hold about the experience. Perhaps these effects are driven by the metacognitive reassessment and subsequent change in how individuals interpret the experience means (Petty et al., 2007). Based on aforementioned findings and theorizing, we predict that conducting the same action but ascribing different metacognitive meanings to the same action will reconcile Briñol et al. (2013) and Sparrow et al. (2011) by replicating the two contradictory results documented in each study. In testing this prediction, we adapt the thought materialization paradigm (Briñol et al., 2013) in which participants write down valenced thoughts about an attitude object and then physically treat the written thoughts with different meanings. We also predict that the subsequent evaluation of the object from which thoughts are generated will depend on the meanings ascribed to the action. Furthermore, we predict that this effect will be mediated by the change in thought confidence which was shown to be one of the key elements in metacognitive processes (Briñol & Petty, 2008; Briñol et al., 2009; Petty et al. 2007).

STUDY 1: THOUGHTS ABOUT UNIVERSITY SAVED INTO OR DELETED FROM A COMPUTER

The goal of the present study was to examine the extent to which internally generated meaning of one’s own action taken with objectified thoughts can change consumer evaluations. In this study, participants first wrote on a computer either positive or negative thoughts about the University that they attend to. Then, all participants were asked to whether they want to save to or delete from the computer their objectified thoughts (i.e., an electronic file). We expected that physically saving one’s objectified thoughts can lead to the validation of thoughts whereas deleting one’s objectified thoughts can lead to the invalidation of the thoughts, even when the physical action of saving or deleting was identical. That is, we expected less thought use when thoughts were deleted than when they are saved.

Participants and Design

Based on the effect size reported in the previous research (Briñol et al. 2013), we predetermined the sample size to be at least 180 and ended attempted to collect responses from as many participants as possible. One hundred and eighty eight business undergraduate students ($M_{age} = 20.67$, $SD_{age} = 1.17$; 47% women) participated in study 1 in exchange for partial course credit. The study was presented as a survey that examines student’s thoughts about the university they attend. They were randomly assigned to one of the conditions within a 2 (thought direction: positive, negative) between-subjects design. Gender and age neither predicted nor interacted with the other independent variables to predict significant variance in the dependent variable. This was true across all the studies and these variables will not be discussed further.
Independent Variables

*Manipulation of Thought Direction.* We chose participants own University because thoughts about one’s University has been shown to be an important determinant of well-being and life satisfaction for the undergraduate students. Participants were instructed to list as many positive or negative thoughts, depending on condition, about their university during a three minutes period. Those randomly assigned to the positive thought direction condition were told to list on a computer as many positive thoughts about their university as possible. Those in the negative thought direction condition they were told to list on a computer as many negative thoughts about the university. This manipulation has proven to be successful previously in producing one group with favorable thoughts and another with unfavorable thoughts toward the university (Briñol et al. 2013) and a variety of other topics (Killeya and Johnson, 1998). Examination of the thoughts listed indicated that all participants followed the instructions. Examples of positive thoughts included, “beautiful campus”, “school supports students’ career goal well”, “lots of social opportunities” and so on. Examples of negative thoughts included, “cold winter”, “inefficient public transportation and parking spaces management”, “hard to enroll in classes that I really want to take”, “expensive tuition” etc.

*Choice of Meaning of Action.* After listing the thoughts, participants reviewed their own writing and were asked to choose one of the two options: “save the thoughts about university into the computer” or “delete the thoughts about university from the computer”. After participants made their decision, a slider appeared on a computer screen and participants were instructed to move the slider all the way to implement their thought treatment choice. To further ensure that the meaning of action is clear to the participants, either the word “save” or “delete” was displayed next to the slider depending on the choice that participants made. Therefore, all participants conducted the same action but the meaning of this action varied depending on participants’ choices. In other words, participants chose and ascribed different meaning to their own action.

Dependent Variables

*Evaluation.* After their thoughts were chosen to be saved or deleted and the choice was implemented, participants evaluated their own university (“good”, “desirable”, “useful”; 1 = not at all, 9 = very much), which were averaged to create the index of university evaluation ($\alpha = .90$).

*Thought Confidence.* As a measure of thought confidence, participants were asked to recall the thoughts that they listed about the university and answered how confident they feel about their thoughts (1 = not at all confident in my thoughts, 9 = extremely confident in my thoughts; Petty et al. 2002).

In order to ensure that no participants correctly conjectured the purpose of the study, participants were asked to guess and write what they thought the purpose of the study might have been. Afterward, participants were thanked and debriefed.

Results

Examination of the participants’ writing on the potential purpose of the study revealed that no participants correctly conjectured the purpose of the study. That is, no participants knew that the purpose of the study was to examine whether treating written thoughts in certain manner (e.g., saving or deleting) influences subsequent confidence in thoughts and evaluation of the topic on
which thoughts were generated. This was true across all the studies and this variable will not be discussed further.

**Thoughts Amount, Favorability, and Persuasiveness.** The length of writing was measured based on the number words used in the writing. A comparison revealed that the number of words used in the positive thought condition ($M = 68.05, SD = 41.59$) and the negative thoughts condition ($M = 62.43, SD = 42.87$) was not significantly different ($F(1, 184) = 0.83, p = .36, \eta^2_p < .01$), indicating that comparable amount of thoughts were generated across the two conditions. Then, two independent coders (coder 1 and coder 2) judged how “favorable” and “positive” participants’ thoughts toward the topic is and also how “persuasive” and “convincing” the thoughts are (1 = not at all, 5 = very much). The judgment by the two coders in each four dimension was highly correlated (all four correlation coefficients $\rho < .01$) and also internally reliable ($\rho_{positive} = .96, p < .001, \alpha_{positivity} = .98; \rho_{favorable} = .95, p < .001, \alpha_{favorable} = .98; \rho_{persuasive} = .85, p < .001, \alpha_{persuasive} = .99; \rho_{convincing} = .74, p < .001, \alpha_{convincing} = .85$). Two coders’ judgment on “positive” and “favorable” were averaged to create an index of positivity and “persuasive” and “convincing” were averaged to create an index of persuasiveness. The positivity of thoughts were higher among the participants who were assigned to the positive thought direction condition ($M = 4.53, SD = .63$) than those who were assigned to the negative thought direction ($M = 1.31, SD = .65; F(1, 186) = 1114.92, p < .001$). The persuasiveness of thoughts were not significantly different between the positive thought direction condition ($M = 4.12, SD = .59$) and the negative thought direction ($M = 4.21, SD = .80; F(1, 186) = .71, p = .40$). Therefore, those who were instructed to generated positive (vs. negative) thoughts actually generated positive (vs. negative) thoughts about the university but the persuasiveness of the thoughts were not significantly different between the two thought direction conditions.

**Choice of Meaning of Action.** Among 188 participants, 141 participants (75%) chose to save their thoughts and 47 participants (25%) chose to delete their thoughts. Among the 94 participants assigned to the positive thought condition, 67 participants (71.28%) chose to save their thoughts. Among the 94 participants assigned  to the negative thought condition, 74 participants (78.72%) chose to save their thoughts. To further analyze the effect of thought direction on thought treatment decision, we conducted a binary logistic regression in which thought direction (0 = negative, 1 = positive) predicted thought treatment decision (0 = save, 1 = delete). The result showed that the effect of thought direction on thought treatment choice was not significant ($b = -.20, \text{Wald’s } \chi^2 (1) = 1.38, p = .24$). Therefore, whether participants generated positive or negative thoughts did not influence their decision whether to save or deleting their own thoughts.

**Evaluation of the University.** Next, the university evaluation index was submitted to a 2 (thought direction: positive, negative) × 2 (meaning of an action: save, delete) ANOVA. Neither the main effect of thought direction nor meaning of an action was significant (both $Fs > .22$). However, the results of the ANOVA revealed a significant interaction between thought direction and the meaning of an action ($F(1, 184) = 4.34, p = .04$). In the saving condition, positive thoughts about the university led to a more favorable evaluation of the university ($M = 8.20, SD = 1.05$) than negative thoughts ($M = 7.61, SD = 1.47; F(1, 184) = 6.60, p = .01$). In the delete condition, however, positive thought condition ($M = 7.56, SD = 1.79$) and negative thought condition ($M =
7.93, SD = 1.33) were not significantly different in their evaluation of the university \((F(1, 184) = .87, p = .35, \text{see figure 1})\).

**FIGURE 1**

**STUDY 1 RESULTS: EVALUATION OF UNIVERSITY AS A FUNCTION OF MEANING OF ACTION AND THOUGHTS DIRECTION**

*Thought Confidence.* Next, the measure of thought confidence was submitted to a 2 (thought direction: positive, negative) \(\times\) 2 (meaning of an action: save, delete) ANOVA. The main effects of thought direction \((F(1, 184) = 1.27, p = .26, \eta^2_p < .01)\) or the interaction between the thought direction and the meaning of an action were not significant \((F(1, 184) = .14, p = .71, \eta^2_p < .01)\). As predicted, there was a significant main effect of the meaning of an action on thought confidence \((F(1, 184) = 24.25, p < .01, \eta^2_p = .12)\). The average thought confidence was higher when those thoughts were saved \((M = 7.82, SD = 1.34)\) than when thoughts were deleted \((M = 6.40, SD = 2.59, \text{see figure 2})\), regardless of thought direction. In the further analysis, it was revealed that the effect thought direction on confidence was not significant in both save condition \((F(1, 184) = .58, p = .45)\) and delete condition \((F(1, 184) = .74, p = .39)\). In other words, the action of saving (vs. deleting) led to greater confidence and this was true regardless of whether the thoughts about the University were positive or negative.
**FIGURE 2**

**STUDY 1 RESULTS: MAIN EFFECT OF MEANING OF AN ACTION ON CONFIDENCE**

*Meditation Analysis.* In order to examine whether the level of thought confidence mediates the effect of the two manipulated variables on evaluation of university, we conducted the mediated moderation test using the bootstrapping methods (Muller, Judd, and Yzerbyt 2005). In this procedure, both thought direction (i.e., negative thoughts = -1, positive thoughts = 1) and the meaning of an action (delete = -1, saving = 1) were contrast coded, and, thought confidence was mean-centered. In order to test the hypothesized mediation by thought confidence, we conducted a bootstrap-based mediated moderation analysis (Preacher and Hayes 2004; Shrout and Bolger 2002) using Hayes process macro (model 4). In this analysis, thought direction x meaning of an action was an independent variable, intention to redeem the coupon was a dependent variable, and thought direction x thought confidence was a mediating variable (see figure 3). This approach includes procedures that compute a 95% confidence interval (CI) around the indirect effect and mediation and mediation is indicated if CI does not include zero. As predicted, the result of this bootstrapping procedure with 10,000 bootstrap sample revealed that the 95% confidence interval of the indirect effect (i.e., the path through the mediator) did not include zero (Indirect Effect a x b = .12, CI95% = from .02 to .27). Therefore, the mediation by thought confidence is supported (Shrout and Bolger 2002).
FIGURE 3
THE MEDIATING ROLE OF CONFIDENCE IN STUDY 1

Note: * indicates $p < .05$. Figure in the parenthesis (i.e., .13) is the direct effect of Thought Direction x Meaning of Action on the Evaluation of University after the effect through the indirect path is accounted for.

Discussion
The current study has several important implications. People’s choice of action and the meaning ascribed to the action vary among individuals and also among different choice contexts. That is, what saving or deleting means may have varied among the participants in the current study. However, we showed that saving one’s objectified thought led to validation of the thoughts whereas deleting one’s objectified thoughts led to invalidation. This result confirms our prediction that saving in general is perceived as having a positive meaning whereas deleting is perceived as having a negative meaning.

Importantly, we demonstrated that different meaning of one’s action can increase or decrease thought confidence. Prior research in embodied cognition has shown that the same action can produce different results when different meanings are ascribed to the same action (e.g., Adam and Galinsky 2012). Also, prior research in self-validation has shown that confidence in one’s thought can validate the thought (Petty et al., 2002). However, it was never shown that change in the meaning of one’s action influence validation via change in the level of thought confidence. The current study successfully triangulated the meaning of action, confidence, and thought validation and demonstrated that the reason why meaning of one’s action validates one’s thought is because it affects thought confidence. To our best knowledge, this is the first study showing that the potential key underlying mechanism of many embodiment effects is the change in the confidence of one’s thoughts. These findings bridge the literature of self-validation and the literature of embodied cognition and the studies showed that meaning matters in producing embodiment effects.

In study 2, we examined whether the effects observed in study 1 holds when the meaning of an action was externally provided by the experimenter rather than chosen by the participants.
STUDY 2: THOUGHTS ABOUT UNIVERSITY SAVED INTO OR DELETED FROM A

In order to examine whether externally provided meaning can validate or invalidate one’s thought, thoughts were generated about the same topic provided in study 1 (i.e., one’s University). Just as in study 1, participants treated their objectified thoughts with the same action but the meaning of action was externally provided to mean either saving or deleting. It was our prediction that externally provided meaning would create an effect observed in study 1 where saving one’s thought validate the thoughts but deleting one’s thought invalidate the thoughts.

Participants and Design
The sample size was determined based on the previous research that employed a similar paradigm (Briñol et al. 2013, study 1). Seventy four business undergraduate students ($M_{age} = 20.84$, $SD_{age} = 1.31$; 49% women) participated in study 2 in exchange for partial course credit. Just as in study 1, the study was presented as a survey that examines student’s thoughts about the university they attend. They were randomly assigned to one of the conditions within a 2 (thought direction: positive, negative) x 2 (meaning of action: save, delete) between-subjects design.

Independent Variables

Manipulation of Thought Direction. The procedure for thought direction manipulation was the same as in study 1. Participants were instructed to list on a computer as many positive or negative thoughts, depending on condition, about their university during a three minutes period. Those randomly assigned to the positive thought direction condition were told to list on a computer as many positive thoughts about their university as possible. Those in the negative thought direction condition they were told to list on a computer as many negative thoughts about the university.

Manipulation of Meaning of Action. After listing the thoughts, participants were randomly assigned to save or delete meaning of action conditions. Participants in the saving condition were told that the writing task is over and their thoughts need to be saved into the computer. Participants in the deleting condition were told that the writing task is over and their thoughts need to be deleted from the computer. Then, just as in study 1, a slider appeared on a computer screen and participants were instructed to move the slider all the way to the right on the computer screen. To further ensure that the meaning of action is clear to the participants, the word “save” or “delete” displayed next to the slider depending on assigned condition.

Dependent Variables
Just as in study 1, three items were used to measure the evaluation of the University (“good”, “desirable”, “useful”; 1 = not at all, 9 = very much) and they were averaged to create the index of university evaluation ($\alpha = .93$). Afterward, participants were thanked and debriefed.

Results
The university evaluation index was submitted to a 2 (thought direction: positive, negative) x 2 (meaning of action: save, delete) ANOVA. Neither the main effect of thought direction ($F(1, 70) = 2.36, p = .13, \eta^2_p = .03$) nor the main effect of thought treatment ($F(1, 70) = .18, p = .67, \eta^2_p < .01$) was significant. As predicted, there was a significant interaction between the thought direction and the meaning of action ($F(1, 70) = 6.71, p = .01, \eta^2_p = .09$) on the evaluation of the university. In the saving condition, positive thoughts about the university led to a more
favorable evaluation of the university ($M = 8.40, SD = .74$) than negative thoughts ($M = 7.19, SD = 1.74$; $F(1, 70) = 7.48, p < .01, \eta^2_p = .25$). In the delete condition, however, positive thought condition ($M = 7.52, SD = .83$) and negative thought condition ($M = 7.83, SD = 1.47$) were not significantly different in their evaluation of the university ($F(1, 70) = .65, p = .42, \eta^2_p = .04$, see figure 4).

**FIGURE 4**  
STUDY 2 RESULTS: EVALUATION OF UNIVERSITY AS A FUNCTION OF MEANING OF ACTION AND THOUGHTS DIRECTION

Discussion

In study 2, the same action was conducted by all participants but the meaning of the action varied. A critical difference between study 1 and 2 is that the meaning was internally chosen in study 1 whereas the meaning was externally provided in study 2. Despite this difference, study 2 successfully replicated the results of study 1. This result indicates that the extent to which the source of meaning is internal or external does not affect the thought materialization. That is, action that means saving validated thoughts whereas an action that means deleting invalidated thoughts, regardless of whether the meaning was chosen by the actor or provided by an external agent such as an experimenter.

In study 3, we examined whether meanings that are externally provided leads to validation or invalidation of the thoughts via the same mechanism: thoughts confidence. In doing so, we chose McDonald’s as a topic of thoughts because consumption of unhealthy food was shown to be an important determinant of consumer’s well-being and happiness (Chandon and Wansink, 2007; Moorman and Matulich, 1993).
STUDY 3: THOUGHTS ABOUT McDONALD’S SAVED INTO OR DELETED FROM A COMPUTER

The primary goal of study 3 was to examine whether an action can influence the level of thought confidence when the meanings ascribed to the action is externally provided. Participants in study 3 generated thoughts about McDonald’s, which sells fast food generally considered unhealthy (Chandon and Wansink, 2007). We chose McDonald’s as a topic of thoughts for two reasons. First, consumption of healthy or unhealthy food has an important effect on consumer’s health. However, it was shown that regulating the consumption of vice foods, such as McDonald’s, is often difficult to consumer (cite). In study 3, we examined whether objectifying one’s thought about McDonald’s influences behavioral intention related to consuming McDonald’s foods.

Second, one’s University is not only an important construct to one’s self-identity but also a high-involvement educational service. Although study 1 and 2 successfully showed that thought materialization effect holds when thoughts were generated about one’s University, we do not know how much the importance of University to the self has contributed to the emergence of thought materialization effect. Therefore, another reason why we chose McDonald’s was to examine whether thought materialization effect holds for an object that is less involving and less relevant to the self-concept.

Participants and Design

Two hundred and thirty eight individuals via M-Turk (Mage = 35.73, SDage = 12.80; 66% women) participated in study 3. Participants were then randomly assigned to one of the conditions in a 2 (thought direction: positive, negative) × 2 (meaning of an action: save, delete) between-subjects design.

Independent Variables

Manipulation of Thought Direction. The manipulation of thought direction was the same as previous studies except that thoughts about McDonald’s were generated instead of a university. In the study that was introduced as examining consumer’s thoughts about restaurants, participants were randomly assigned to either a positive or negative thought condition in which they were instructed list on a computer as many positive or negative thoughts about McDonald’s as possible during a three minutes period.

Manipulation of Meaning of Action. The procedure of the manipulation of meaning of action was identical to the previous studies. Participants were told that the writing task is over and their written thoughts need to be, depending on condition, either saved into or deleted from the computer. Just as in previous studies, a slider appeared on a computer screen with the word “save” or “delete”, depending on the condition they were assigned to and they were instructed to move the slider all the way to the right on the computer screen.

Dependent Variables

Intention to Consume McDonald’s Foods. After saving or deleting the thoughts, participants were told that as a parting gift they would be given with a “$5-off” discount coupon redeemable at any McDonald’s store for any menu. Then, they were asked to indicate how much they would like to actually use the coupon to buy foods at McDonald’s in the near future (1 = not at all, 9 = very much). This dependent measure not only captures whether the positive or negative
thoughts generated about McDonald’s persist in participants’ mind but also captures the extent to which they would be willing to consume the food from McDonald’s which is widely considered unhealthy (Chandon and Wansink 2007).

**Thought Confidence.** As a measure of thought confidence, participants indicated the extent to which they feel confident of their own thoughts about McDonald’s on the same item used in study 1 (1 = not at all confident in my thoughts, 9 = extremely confident in my thoughts; Petty et al. 2002).

**Results**

*Intention to Consume McDonald’s Foods.* Our dependent measure (i.e., intention to redeem the coupon) was submitted to a 2 (thought direction: positive, negative) × 2 (meaning of an action: save, delete) ANOVA. The results of the ANOVA revealed that the main effects of thought direction were significant ($F(1, 234) = 23.32, p < .01, \eta_p^2 = .10$) which was qualified by a significant interaction between the thought direction and the meaning of an action ($F(1, 234) = 7.70, p < .01, \eta_p^2 = .03$). Specifically, within the save condition, those who generated positive thoughts about McDonald’s ($M = 7.87, SD = 2.19$) indicated a stronger intention to redeem the coupon than those who generated negative thoughts about McDonald’s ($M = 5.17, SD = 3.12$; $F(1, 234) = 28.95, p < .001, \eta_p^2 = .21$). Within the delete condition, the difference between the positive and negative thought condition was not significant ($F(1, 234) = 2.11, p = .15, \eta_p^2 = .02$, see figure 5).

![FIGURE 5](image)

**STUDY 3 RESULTS: INTENTION TO REDEEM MCDONALD’S COUPON AS A FUNCTION OF MEANING OF AN ACTION AND THOUGHT DIRECTION**

*Thought Confidence.* Next, the measure of thought confidence was submitted to a 2 (thought direction: positive, negative) × 2 (meaning of an action: save, delete) ANOVA. The main
effects of thought direction \((F(1, 234) = .64, p = .42, \eta_p^2 < .01)\) or the interaction between the thought direction and the meaning of an action were not significant \((F(1, 234) = .01, p = .94, \eta_p^2 < .01)\). The result revealed only a significant main effect of the meaning of an action on thought confidence \((F(1, 234) = 4.97, p = .03, \eta_p^2 = .02)\). As predicted by the metacognitive perspective, the average confidence in one’s own thoughts were higher when those thoughts were saved \((M = 7.72, SD = 1.64)\) than when thoughts were deleted \((M = 7.24, SD = 1.72; F(1, 234) = 4.97, p = .03, \eta_p^2 = .02, \) see figure 6) regardless of thought direction. In other words, an action of saving (vs. deleting) led to greater confidence in the saved (vs. deleted) thoughts, regardless of the valence of thoughts.

**FIGURE 6**

STUDY 3 RESULTS: MAIN EFFECT OF MEANING OF AN ACTION ON CONFIDENCE

![Chart showing the main effect of meaning of an action on confidence](image)

**Mediation Analysis.** An additional mediated moderation analysis was conducted based on the same procedure reported in study 1. Both thought direction (i.e., negative thoughts = -1, positive thoughts = 1) and the meaning of an action (delete = -1, save = 1) were contrast coded, and, thought confidence was mean-centered. Just as in study 1, “thought direction x the meaning of an action” was entered into the model as an independent variable, “intention to redeem a coupon” was a dependent variable, and “thought direction x confidence” was a mediating variable. Consistent to study 1, the result this bootstrapping procedure with 10,000 bootstrap sample revealed that the 95% confidence interval of the indirect effect (i.e., the path through the mediator) did not include zero \((CI_{95\%} = \text{from .02 to .24})\). Therefore, the mediation through thought confidence is supported (Shrout and Bolger 2002).
FIGURE 7
THE MEDIATING ROLE OF CONFIDENCE IN STUDY 3

Note: * indicates $p < .05$. Figure in the parenthesis (i.e., .40) is the direct effect of Thought Direction x Meaning of Action on the Intention to Redeem the Coupon after the effect through the indirect path is accounted for.

Discussion
The results of study 3 have several important implications. First, we successfully extended the thought materialization effect to a new domain, namely restaurants. The results indicate the possibility that thoughts about various objects such as one’s own university or a restaurant chain can be materialized and the treatment of the materialized thoughts can either validate or invalidate the thoughts. Second, just as in study 1, we showed that the thought materialization effect is mediated by thought confidence. Therefore, regardless of whether the meaning of action is internally generated (study 1) or externally provided (study 3), treating thoughts with an action that is associated with safeguarding (vs. marginalizing) meaning increases (decreases) confidence. Lastly, by utilizing the intention to use a real coupon as a dependent measure, study 3 showed that treating materializing thoughts in certain manner can influence consumer’s behavioral intention related to the thoughts. Therefore, materializing and treating thoughts not only influence attitude toward the thought object (studies 1 and 2) but also influence behavioral intention toward the object. Study 3 suggests a new paradigm through which consumer’s healthy and unhealthy thoughts can be managed. In study 4, we examined the impact of thought materialization on behavioral intention in an academic domain. Also, we utilized a new thought generation method in study 4; hand writing.

STUDY 4: THOUGHTS EXTENDED OR MADE OUT OF SIGHT

Study 4 had several notable variations. In contrast to previous studies in which thoughts were generated and typed on a computer in previous, thoughts were generated and written on a sheet of paper with a pencil. Because recent research has shown that hand writing and type writing could elicit different processing styles (Muller & Oppenheimer, 2014), the purpose of utilizing hand writing was to examine whether thought materialization effect is not limited to type writing. Also, slightly different meanings were assigned to the thought treatment action. Specifically, we adopted the meaning from the Chinese Lantern Festival where individuals extend their positive thoughts or send away negative thoughts by flying a lantern toward the sky. Additionally, we chose
participant’s coursework as the thought object. We aimed to examine whether the behavioral impact of thought materialization extends to the domains other than health. For this purpose, we chose coursework as thought object because undergraduate student populations exert various efforts in order to improve their performance in the coursework.

Participants and Design
Two hundred and forty nine business undergraduate students (Mage = 20.75, SDage = 1.25; 45% women) participated in study 4 in exchange for partial course credit. The study was presented as a school-wise survey that examines student’s thoughts about their coursework. They were randomly assigned to one of the conditions within a 2 (thought direction: positive, negative) × 2 (meaning of an action: extending, out of sight) between-subjects design.

Independent variables

Manipulation of thought direction. The overall procedure of thought direction manipulation was similar to previous studies. Participants chose one of the courses that they are taking in the current semester and generated either positive or negative thoughts about the course using a pen and a paper.

Manipulation of meaning of action. After listing their thoughts for a 3 minutes period, just as in previous studies, participants placed their written thoughts into a plastic box that was prepared on each participant’s desk. Adapting the meanings from the Chinese Lantern Festival in which individuals materialize wishes and thoughts into the lantern and extend them to the greater world (Melton 2011), participants in the extension condition were told that the action means “extending” their thoughts “beyond themselves.” In contrast to this, the same action can mean making unwanted thoughts out of sight. Therefore, participants in the out of sight condition were told that the action means making their thoughts out of sight.

Dependent Variables

Intention to study for the coursework. Participants answered the extent to which they intend to study for the coursework: willingness to spend time for the coursework, willingness to study often for the coursework, willingness to exert effort for the coursework (1 = not at all, 9 = very much). The three items were averaged to create an index of intention to study for the coursework (α = .88).

Thought confidence. As a measure of thought confidence, participants indicated the extent to which they feel “confident” and “certain” about their own thoughts about coursework (1 = not at all, 9 =very much; Petty et al. 2002). The two items were averaged to create the index of thought confidence (α = .82).

Results

Intention to Study for the Coursework. The intention to study was submitted to a 2 (thought direction: positive, negative) × 2 (meaning of an action: extension, out of sight) ANOVA. Neither the main effect of thought direction (F(1, 245) = 1.16, p = .28) nor the main effect of meaning of an action (F(1, 245) = .01, p = .91) on the intention to study were not significant. As predicted, the results of the ANOVA revealed a significant interaction between thought direction and the meaning of an action (F(1, 245) = 7.48, p < .01). In the extension condition, positive thoughts
about the coursework led to a greater intention to study for the coursework ($M = 7.57$, $SD = 1.28$) than negative thoughts ($M = 6.89$, $SD = 1.53$; $F(1, 245) = 7.23$, $p < .01$). In the out of sight condition, however, positive thought condition ($M = 7.06$, $SD = 1.46$) and negative thought condition ($M = 7.36$, $SD = 1.29$) were not significantly different in their intention to study for the coursework ($F(1, 245) = 1.38$, $p = .24$, see figure 8).

FIGURE 8
STUDY 4 RESULTS: STUDY INTENTION AS A FUNCTION OF MEANING OF ACTION AND THOUGHTS DIRECTION

Thought confidence. Next, the measure of thought confidence was submitted to a 2 (thought direction: positive, negative) × 2 (meaning of an action: extend, out of sight) ANOVA. The main effects of thought direction ($F(1, 245) = 2.14$, $p = .15$, $\eta^2_p < .01$) or the interaction between the thought direction and the meaning of an action were not significant ($F(1, 245) = .46$, $p = .50$, $\eta^2_p < .01$). The result revealed only a significant main effect of the meaning of an action on thought confidence ($F(1, 245) = 11.38$, $p = .001$, $\eta^2_p = .04$). As predicted by the metacognitive perspective, the average confidence in one’s own thoughts were higher when those thoughts were extended ($M = 7.52$, $SD = 1.24$) than when thoughts were made out of sight ($M = 6.90$, $SD = 1.63$; $F(1, 245) = 11.38$, $p = .001$, $\eta^2_p = .04$, see figure 9) regardless of thought direction. In other words, an action of extending (vs. making out of sight) led to greater confidence in the thoughts, regardless of the valence of thoughts.
Mediation analysis. A mediation analysis was conducted based on the same method used in study 1 and 3. Both thought direction (i.e., negative thoughts = -1, positive thoughts = 1) and the meaning of an action (out of sight = -1, extending = 1) were contrast coded, and, thought confidence was mean-centered. Just as in previous studies, “thought direction x the meaning of an action” was entered into the model as an independent variable, “intention to study for the coursework” was a dependent variable, and “thought direction x thought confidence” was a mediating variable. Consistent to study 3, the result this bootstrapping procedure with 10,000 bootstrap sample revealed that the 95% confidence interval of the indirect effect (i.e., the path through the mediator) did not include zero (Indirect Effect = .23, CI_{95%} = from .06 to .58). Therefore, the mediation through thought confidence is supported (Shrout and Bolger 2002).

Discussion

Study 4 successfully replicated the thought materialization phenomenon in an academic performance context. Specifically, participants exhibited intention to exert effort for the coursework they were actually taking depending on the direction of thoughts and meaning of treatment. Study 3 and 4 show that the impact thought materialization is not limited to the direct attitude toward the thought object but also extends to the behavioral intention. Also, study 4 demonstrate that thought materialization effect persist regardless of whether thoughts are generated based on type writing or hand writing methods. Additionally, the meanings ascribed to the action in study 4 was different compared to previous studies but still produced the same thought materialization effect. Therefore, it is implicated that meanings associated with safety or augmentation leads to greater thought confidence and use of thoughts whereas meanings associated with marginalization or disposal leads to less thought confidence and use of thoughts. Study 4 also provides further evidence and thought confidence is the underlying mechanism of thought materialization phenomenon.
GENERAL DISCUSSION

The current research sought for further evidence of thought materialization effect previously demonstrated in Briñol et al. (2013) and attempted to reconcile the seemingly contradictory results documented in Briñol et al. (2013) and Sparrow et al. (2011). In doing so, we built upon prior work on metacognition and self-validation hypothesis (Briñol, Petty, Valle, Rucker, & Becerra, 2007; Briñol et al., 2009; Jost et al., 1998; Petty et al., 2007). We hypothesized that the meaning of action is a key factor producing the contradictory results in Briñol et al. (2013) and Sparrow et al. (2011). In order to test this prediction, we varied the meaning of an action while holding the action constant. Consistent with our prediction, we showed across three studies that writing down valenced thoughts about an object and treating it with an action that means safeguarding or marginalizing validated or invalidated the thoughts and created differences in the subsequent intention to engage in healthy behavior such as exercising or food choices. These results conceptually replicate Briñol et al. (2013) and Sparrow et al. (2011) and further identify meaning of action was the key factor producing thought materialization phenomenon. Also, it is implicated that the meaning associated with an action produces embodiment effects, not the action itself per se.

Across studies, thoughts were generated from a variety of objects that is generally perceived as healthy (exercising Study 1) or unhealthy (McDonald’s Studies 2 and 3) by default. It was shown that saving positive thoughts about exercising increase the intention of healthy behavior (Study 1) which is consistent with the thoughts individuals had in mind. In contrast to this, saving positive thoughts about McDonald’s decreased the intention to engage in healthy behavior (Study 2) or increased the intention to engage in unhealthy behavior (Study 3). Therefore, it is implicated that whether the action of saving or deleting one’s thoughts leads to healthy or unhealthy behavior depends on whether the thoughts are generated about an object that are healthy or unhealthy by default.

Theoretical Contributions

The purpose of the current research was to explore the impact of meaning of an action in creating thought materialization effect and reconcile the seemingly contradictory results documented in Briñol et al. (2013) and Sparrow et al. (2011). The current research contributes to the literature of embodied and situated cognition by demonstrating the important role of the meaning of an action in producing embodiment effects and also by providing novel insight into the underlying mechanism of embodiment processes by which an action influences mind through change in the level of confidence. It was shown that safeguarding one’s thoughts increased confidence in the thoughts whereas marginalizing decreased the confidence. This finding was true regardless of the valence of the thoughts. These results are consistent with prior research on embodied cognition (Briñol & Petty, 2008; Briñol et al., 2009) or naïve theories (Briñol, Rucker, & Petty, 2015) which have shown that meaning associated with action or mental experiences can validate or invalidate one’s thoughts.

The current research makes several additional contributions. Prior embodiment research has mostly focused on examining the impact of a single action on mind. The current research contributes to the literature by demonstrating that a more sophisticated orchestration between multiple actions (e.g., writing down thoughts and treating it with certain meaning) can produce embodiment effects. Also, embodiment effects in the past research were produced based on actions
that had predisposed meaning. For example, engaging in horizontal head movement while listening to a persuasion message was shown to influence the extent of persuasion by the message because the head movement implicitly means agreement (Briñol & Petty, 2003). Similar effects were shown to be produced by other actions such as arm flexion or approaching behavior (Cacioppo et al., 1993; Chen & Bargh, 1999; Labroo & Nielson, 2010). In contrast to these studies which utilized actions that have predisposed meaning, the current research shows that instantly generated and externally provided meanings of an action can produce similar embodiment effects. Additionally, embodiment effects in most of the previous studies were produced through an automatic process in which predisposed meaning of an action influences mind through their implicit meaning (Cacioppo et al., 1993; Chen & Bargh, 1999). In contrast to this, the current research ascribed explicit meanings to the action such as safeguarding and marginalizing. Because these meanings were made explicit in the actor’s mind, this result indicate that embodiment effects can be created through a relatively elaborative high-thinking process as well.

Also, prior embodiment research has mainly focused on how conducting an action influences evaluation of external stimuli such as the persuasion by message (Briñol & Petty, 2003), products (Labroo & Nielson, 2010) or neutral words provided by an experimenter (Priester et al., 1996). Less understood is whether internally generated stimuli such as one’s own thoughts can change as a result of conducting an embodied action. The current research successfully demonstrated this possibility.

The finding that thought materialization paradigm can influence one’s thoughts about various objects also contributes to the literature of thought management by identifying a unique means through which one’s wanted or unwanted thoughts can be effectively managed (Gawronski et al., 2008; Wegner & Erber, 1992).

Future direction

The current research examined thought materialization phenomenon that occurs through thoughts related to health. In doing so, we used thought objects that have both positive and negative aspects. Future research can examine whether the thoughts on valenced objects can be materialized to the same degree. For example, in can be examined whether thoughts on liked or disliked person at the workplace can be materialized to the same degree.

Future research can also examine when the subjective meaning of an action is more malleably to change. Recent research into naïve theories show that malleability of various beliefs increases when individuals are motivated to do so (Leith et al., 2014; Steimer & Mata, 2016). Leith et al. (2014) showed that people’s belief in implicit theory of personality and intelligence (i.e., incremental vs. entity theory) could change depending on the situation and contexts. For example, it was shown that individuals endorse incremental (vs. entity) theory after thinking about their failure because incremental (vs. entity) theory fits better with their motivation to improve them in the future. In contrast to this, it was shown that individuals endorse entity (vs. incremental) theory when they are thinking about a disliked person’s failure because they want the failure to “stick” to the disliked person. According to this perspective, perhaps it is the case that the meaning of an action can be more or less malleable depending on the extent to which individuals like the object from which thoughts are generated. For example, for an individual who likes McDonald’s to a
great extent, it could be difficult to ascribe marginalizing meaning to the action conducted on the positive thoughts about McDonald’s.

Future research can also examine how flexible individuals are in generating meanings about one’s own action. Perhaps individuals may be more flexible in generating alternative meanings from the same action when they are motivated to change the meaning of the action. For example, the same action of placing one’s thought into the pocket could be interpreted as making them out of sight when the thoughts are unwanted by individuals. The same action can be interpreted as keeping them safe when the thoughts are wanted. It will also be worthwhile examining whether the impact of self-generated meanings and externally provided meanings differ in their strength and persistence.

Also, the current research showed that multiple actions can coordinate to create embodiment effects. Future research can examine whether there is a difference in the embodiment effect created by a single vs. multiple action. Perhaps they may differ in their strength and persistence in mind. The limitation of the current research is that we measured stated intention of health behaviors but we did not measured actual change in health behavior. Future research can examine whether materializing certain thoughts and treating it with meaning-embedded action can help individuals actually engage in more healthy behaviors.
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Perceived scarcity has been shown to impact consumers cognitive ability and decision making (Shah, Mullainathan, and Shafir 2012; Mehta and Zhu 2016; Mullainathan and Shafir 2013; Sunsteint 2006). While some research has found consequences of scarcity to be positive (Mehta and Zhu 2016), most argue the opposite (Mullainathan and Shafir 2013; Hill 2001). However, there seems to be some agreement on the mechanisms through which perceived scarcity influences consumers’ decision making. First, scarcity creates an attentional shift which causes individuals to focus only on the problem at hand and neglect future consequences of their decisions (Shah, Mullainathan, and Shafir 2012). In addition, perceived scarcity reduces cognitive ability leading to the distortion of consumers’ ability to do a proper cost-benefit analysis (Sunsteint 2006). The combination of the scarcity-caused tunnel vision and reduced cognitive ability puts consumers in a vulnerable position. The focus of this study is to test how dimensions of perceived scarcity vary in their effect on consumers’ borrowing, cost estimation, perceptions and behavioral outcomes in the context of payday loans.

Consumers with high levels of perceived scarcity usually suffer from limited savings and high amounts of debt. These adverse circumstances can become reinforced by behavioral responses to the environment. Payday loan companies are perceived by many as predatory lending practices. Consumers suffering from scarcity are specifically vulnerable to such lending practices. Moreover, due to the constraint mindset created by perceived scarcity, these individuals are more likely to overborrow, unable to pay off the entire loan amount, they have no choice but to reborrow. This is what is referred to as a cycle of debt. Research has shown that 83% of individuals borrowing from payday loans are already in debt, and 55% of them take out more than one payday loan a year (Freeman 2016) indicating the vulnerability of this group to the cycle of debt.

In this study, we posit that perceived financial scarcity is a multidimensional construct. We suggest that dimensions of scarcity work in tandem to change consumers’ attention and financial decisions. Previous research has frequently treated scarcity as a basic process across individuals, ignoring important situational and internal differences. We expect lack of liquidity, criticality (i.e. perceived importance of a particular condition), perceived consequences (i.e. perception of loss vs. gain), and reduced lending options may all interact to affect a consumer’s financial decision-making. Of specific interest are the following research questions: (1) Will consumers over-borrow more under conditions of limited financial resources or when the need for money becomes critical? (2) How will other sources of financial scarcity (e.g., perceived consequences) influence borrowing? (3) Are consumers most vulnerable to over-borrowing when they are in a triple scarcity situation? (4) Will improvements in perceived financial scarcity have a positive impact on perceptions and behavioral outcomes for the most vulnerable group of consumers (i.e., current payday users)?

Across three studies we demonstrate the impact of triple scarcity on financial decision making. We find that criticality of a situation does not negatively influence new payday users. Recent payday consumers’ perceptions and behavioral responses, though, seem especially vulnerable to criticality. As the criticality increases, overborrowing and cost misestimation increase, as well. As expected, the effect becomes more severe (i.e., less favorable) under conditions of no liquidity. Additionally, the presence of lending options is most helpful to new payday users, while other aspects of the “triple scarcity effect,” such as framing (loss/gain), have significant consequences for recent payday users. When these consumers need
money to prevent a loss (e.g., car repossession), they overborrow an average of $200 (40% more than the amount needed) and underestimate the cost by an average of $500!

In a fourth study, we examine and find support for two interventions aimed at reducing the negative impacts of perceived scarcity on financial decision making. Results indicate that reduced loan offering and self-reflection in the form of elaboration are helpful interventions on consumers’ behavior and outcomes. Specifically, reduced loan offering was more helpful for recent payday loan users. Moreover, when the loan offering was reduced, asking participants to elaborate on their needs resulted in less favorable perceptions of source credibility and a lower loan amount. Surprisingly, when the loan offering was not decreased, the impact of elaboration was completely the opposite, resulting in more favorable perceptions and repurchase intention. In other words, it seems that our interventions are more effective when they are offered together.
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INCREASING INCENTIVE EFFECTIVENESS BY LINKING THE INCENTIVE TO A SOURCE THE CONSUMER PAID INTO

Zoe Y. Lu, University of Wisconsin-Madison, Robin Tanner, University of Wisconsin-Madison and Kurt Carlson, Georgetown University

Governments, employers, and marketers often use incentives to motivate certain behaviors (Shapiro and Slemrod, 2003; Soman, 1998). For example, in June 2009 toward the end of the great recession, the government launched a three billion dollar “cash for clunker” program designed to stimulate the new car market by offering consumers subsidies to trade in old vehicles for new more fuel efficient versions. Beginning in 2014, some U.S. employers use up to 30% of the total amount of employees’ health insurance premiums to provide outcome-based wellness incentives (Volpp, Asch, Galvin and Loewenstein 2011). In the marketplace, retailers offer all manner of discounts, rebates, and other incentives to boost sales.

Despite their wide application, the effectiveness of incentive programs varies considerably. Insight as to why this might be can be found in multiple streams of research. Of particular relevance to our work, Epley and his collaborators (Epley and Gneezy, 2007; Epley, Mak and Idson, 2006) demonstrates that consumers are more likely to spend windfall framed as a bonus than as a rebate. Whereas a bonus is typically thought of as being paid for by other people’s money or contributions, a rebate is an incentive funded by what consumers themselves have paid or contributed. According to Epley, consumers are more likely to spend a bonus (some else’s money) than to spend a rebate (their own money) because a bonus increases the consumer’s perceived wealth but a rebate does not. However, potentially at odds with these findings is research on savings and decumulation decisions (Shu and Payne 2015), which finds that the more strongly people feel that Social Security benefits come from money they contributed through their working life, the sooner they want to claim (and presumably spend) it, even though it may leave them worse off.

To reconcile these findings, we note that windfalls generally appear without taking action, whereas claiming Social Security benefits early requires a volitional decision by the retiree to do so. Building on these streams of research, we predict that consumers will feel more ownership over the financial resources underlying incentives they have directly contributed to. This ownership will cause consumers to be more willing to make purchases necessary to realize these incentives. Specifically, we hypothesize the following:

H1: when receiving an incentive is contingent upon making a purchase, consumers will be more likely to make the purchase if they have directly paid into the source of the incentive.
H2: when receiving an incentive is not contingent upon making a purchase, consumers will be less likely to make the purchase if they have directly paid into the source of the incentive.

Study 1 - House Buying Incentive

Two hundred and four participants who had a plan to purchase a new house in the next couple of years were recruited from Mechanical Turk (mean age = 35.08; 59% female) and told to imagine that they were in the market for a house and had some flexibility on the timing of when to buy. According to the instructions, they would prefer to buy next year rather than this year, “because you currently have a lease that you would need to find someone to assume or you would be out several thousand dollars.” But there was one other factor that might influence their decision – In the “individual income tax” condition,

“There is currently a $10,000 first time home buyer incentive being offered in your state. The credit expires in one month, so you need to sign a contract before then to receive the $10,000. The $10,000 incentive is funded by individual income taxes that your state previously collected from local residents (including you).”
In the “corporate tax” condition,

“There is currently a $10,000 first time home buyer incentive being offered in your state. The credit expires in one month, so you need to sign a contract before then to receive the $10,000. The $10,000 incentive is funded by corporate income taxes that your state previously collected from local businesses.”

In the “seller concession” condition,

“The sellers of the house are currently offering a $10,000 seller concession. The concession expires in one month, so you need to sign the contract before then to receive the $10,000.”

Participants were randomly assigned to one of the above three conditions. The dependent variable was “Would you buy the house now”, elicited on a 9-point scale (1=extremely unlikely, 9 = extremely likely). We predicted that participants in the “individual income tax” condition would be more likely to buy the house since they had directly contributed to the state income tax revenue being used to fund the incentive.

**Results**

A one-way ANOVA indicated a main effect of the source of the incentive on likelihood to purchase (F(2, 201) = 4.14, p < .05). Supporting hypothesis 1, pairwise comparisons showed that participants in the “individual income tax” condition were more likely to purchase a new house (M=7.49) than participants in either the “corporate tax” condition (M = 6.95; t(201) = 2.16, p < .05) or the “seller concession” condition (M = 6.82; t(201) = 2.71, p < .01). Of note, while it is possible that participants in the “seller concession” condition could infer that the house was of lower quality, this is not the case for the “corporate tax” condition.

**Study 2 Car Buying Incentive**

Study 2 was designed to explicate the underlying process by exploring if the income tax funded incentive was more effective because participants felt some perceived ownership over the underlying funds. Two hundred participants recruited from Mechanical Turk (mean age = 34.71, 51% female) were told to imagine that they were in the market for a new car and had some flexibility on when to buy. As in Study 1, there were reasons to buy in the end of the year rather than now and also a factor that might influence their decision – “The car you are interested in buying is eligible for a $2,000 incentive this month.”

In the “individual income tax” condition,

“The incentive is funded by individual income taxes the federal government collected from individual taxpayers in the past. Anyone who purchases the car within this month qualifies for this incentive.”

In the “corporate tax” condition,

“The incentive is funded by corporate income taxes the federal government collected from corporate taxpayers in the past. Anyone who purchases the car within this month qualifies for this incentive.”

In the “manufacturer concession” condition,

“The incentive is funded by the car manufacturer. Anyone who purchases the car within this month qualifies for this incentive.”

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We predicted that participants in the “individual income tax” condition would be more likely to buy the car than participants in either the “corporate tax” or the “manufacturer concession” condition. After eliciting the likelihood of early purchase, we also asked every participant to indicate to what extent they agree or disagree with each of the following statements: 1) “Regarding the incentive, I feel like I am getting my fair share of it”; 2) “The incentive that I will receive if I buy the car now comes from money I contributed to”; 3) “I feel that I earned the incentive”. We adapted these three items from Shu and Peck (2011), with the goal of measuring psychological ownership over the incentive (Shu and Payne, 2015).

Results

Participants were randomly assigned to one of the above three conditions, and indicated the likelihood they would buy the car now on a 9-point scale as in Study 1. Five participants failed an attention check question leaving usable data for 195 participants. A one-way ANOVA indicated a main effect of the source of the incentive on likelihood to purchase (F(2, 192) = 3.67, p < .05). Pairwise comparisons showed that participants in the “individual income tax” condition were more likely to purchase a new car (M=6.94) than participants in either the “corporate tax” condition (M = 6.11; t(192) = 2.28, p < .05) or the “manufacturer concession” condition (M = 6.03; t(192) = 2.43, p < .05).

The three items measuring perceived ownership were combined into one (Cronbach’s alpha = .77). The source of the incentive significantly predicted the psychological ownership of the incentive (β = .42, SE = .12; p < .001), and the psychological ownership of the incentive significantly predicted the likelihood of early purchase (β = .80, SE = .09; p <.001). A bootstrapping analysis demonstrated that perceived ownership fully mediated the effect of the source of incentive on early purchase (β = .34, SE = .10; 95% confidence interval = [.16, .56]). See Figure 1.

Figure 1. Mediation in the Car Buying Incentive Study

![Figure 1](https://via.placeholder.com/150)

These results replicate the finding from study 1 while revealing (via mediation analysis) that participants’ felt ownership over the money used to fund the incentive drove the core result.

Study 3 CSA Incentive

Studies 1 and 2 supported Hypothesis 1. Namely, when an incentive is offered contingent upon a specific purchase, consumers are more likely to spend if the incentive is directly linked to contributions they have previously made, than if the incentive is linked to others people’s contributions. Turning to hypothesis 2, we next expand our investigation to include incentives that are unconditional (i.e. more akin to windfalls) and which do not require a purchase to be received.
To generalize from the first two studies, the context for Study 3 was an incentive that encourages a healthier diet. Nowadays, many health plans not only provide access to wellness programs but also offer incentives for participation (Mello and Rosenthal 2010). For example, in Wisconsin, the CSA (community-supported-agriculture) Coalition has several Health Plan Partners that offer their members $100-$200 cash rebates for subscribing to a local CSA farm (and this being more likely to eat fresh vegetables).

One hundred and thirty undergraduate students in a Midwest university participated in Study 3 for extra credit. The study adopted a 2 (incentive-source: health insurance premiums vs. donations) by 2 (incentive-contingency: purchase-contingent vs. windfall) factorial design. Students were randomly assigned to one of the four conditions.

At the beginning of the study, students in the purchase-contingent condition were told to imagine that “You receive a letter from your health insurance provider.”, while those in the windfall condition were told to imagine that “You receive a letter and a $200 check from your health insurance provider.” Next,

In the “health insurance premiums” condition,

“The letter reads: To encourage healthier diets, we have co-launched a program with local CSA (community-supported-agriculture) coalition this year. This program is partially funded by payments insurees, including you, made to us in the past year.”

In the “donations” condition,

“The letter reads: To encourage healthier diets, we have co-launched a program with local CSA (community-supported-agriculture) coalition this year. This program is partially funded by donations the local CSA coalition received in the past year.”

Then, in the “purchase-contingent” condition,

“Every insuree can receive a $200 check from us, if subscribing to a local CSA farm within this month.”

In the “windfall” condition,

“Every insuree, including you, now receives a $200 check from us. We encourage you to subscribe to a local CSA farm with this $200.”

Participants then read, “after subscribing to a local CSA farm, seasonal fresh produce will be delivered to the subscriber once a week from the end of May through mid-October” and was asked to answer the following question: “How likely would you be to subscribe to a local CSA farm now?” which they answered using a 5-point scale (1 = extremely unlikely, 5 = extremely likely).

Results

Eight students failed the attention check question (to correctly recall the amount of the incentive in the end of the study) leaving usable data for 122 students. An ANOVA revealed no main effect of incentive source (F(1, 118) = .06, p = .81), a main effect of contingency (F(1, 118) = 3.77, p = .05), and the predicted interaction between incentive-contingency and incentive-source (F(1, 118) = 11.67, p < .01). Specifically, supporting H1, when the incentive was contingent upon subscribing to a CSA farm, students were more likely to subscribe if the incentive was partially funded by premiums than if partially funded by donations (M_premiums = 3.62, M_donations = 2.81; t(59) = 2.65, p = .01). In comparison, when the incentive was not contingent upon subscribing to a local CSA farm, students were less likely to subscribe if the incentive was
premium-funded than donation-funded ($M_{\text{premium}} = 2.44$, $M_{\text{donations}} = 3.14$; $t(59) = 2.20, p < .05$). See Figure 2.

This result supports H2 and is consistent with the findings of Epley and his collaborators (Epley, Idson and Mak 2005; Epley and Gneezy 2006), namely that consumers are more frivolous with a bonus than with a rebate.

**General Discussion**

Despite the extensive use of varied incentive programs to influence people’s behavior, their creators (from marketers to governments) rarely, if ever, explicitly frame their incentives in terms of the source of the underlying funds. However, across three studies, covering house/car subsidies and a CSA rebate, we demonstrate that framing an incentive as being funded by money consumers have contributed to increases consumer’s perceived ownership over that incentive, which in turn increases their motivation to claim it. See Table 1 for a summary. Study 3 further reconciled this finding with the framing effects Epley et al. proposed with windfall incomes. Thus, it appears, the designers of incentive programs do not currently appreciate a critical variable that they could use to increase their programs effectiveness.

We believe these findings thus have significant implications for incentives designed by both public policy makers and marketers. From a public policy point of view, Study 3 demonstrated how simply framing a monetary CSA incentive as being subsidized by insurance premiums made it more effective than framing it as being subsidized by donations. This effect would likely generalize to a wide range of public policy oriented incentives that similarly aim to motivate society-improving behaviors. For example, consider the cash-for-clunkers program we earlier referenced, or monetary incentives to buy solar power systems. The effectiveness of both would be improved by simply framing the source of the subsidies/incentives as being paid into by the target market. The same logic applies in the consumer realm. For example, we have preliminary data showing that grocery store promotions are more likely to be successful if framed as being funded by store profits (which shoppers would have contributed to) than by a manufacturer concession.
REFERENCES


Table 1. Summary

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<thead>
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<th>Study</th>
<th>Condition</th>
<th>DV</th>
<th>Mediator</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>From Individual Income Tax Revenue</td>
<td>Willingness to Buy = 7.49 (1.44)</td>
<td></td>
</tr>
<tr>
<td>1. House Subsidy</td>
<td>From Corporate Income Tax Revenue</td>
<td>Willingness to Buy = 6.95 (1.60)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>From Seller Concession</td>
<td>Willingness to Buy = 6.82 (1.33)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>From Individual Income Tax Revenue</td>
<td>Willingness to Buy = 6.94 (1.73)</td>
<td>Perceived Ownership = 5.03 (1.18)</td>
</tr>
<tr>
<td>2. Car Incentive</td>
<td>From Corporate Income Tax Revenue</td>
<td>Willingness to Buy = 6.11 (2.21)</td>
<td>Perceived Ownership = 4.15 (1.43)</td>
</tr>
<tr>
<td></td>
<td>From Manufacturer Concession</td>
<td>Willingness to Buy = 6.03 (2.22)</td>
<td>Perceived Ownership = 4.18 (1.39)</td>
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<td>From Health Insurance Premiums &amp; Non-windfall</td>
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<td>3. CSA Rebate</td>
<td>From Donations &amp; Non-windfall</td>
<td>Willingness to Subscribe = 2.81 (1.28)</td>
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<td></td>
<td>From Health Insurance Premiums &amp; Windfall</td>
<td>Willingness to Subscribe = 2.44 (1.19)</td>
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<td>From Donations &amp; Windfall</td>
<td>Willingness to Subscribe = 3.14 (1.30)</td>
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</tbody>
</table>

* Numbers outside parentheses are means and numbers inside parentheses are standard deviations.

* Willingness to Buy in Study 1 and Study 2 was elicited on a 9-point scale. Perceived ownership in Study 2 was elicited on a 7-point scale. Willingness to Subscribe in Study 3 was elicited on a 5-point scale.
PRINCESSES & CUPCAKES:
HOW FOOD IS PORTRAYED IN CARTOONS
AND IT’S IMPACT ON CONSUMPTION

Eric Setten and T. Bettina Cornwell, University of Oregon

ABSTRACT
This paper explores the differences in how food is portrayed in cartoons that target girls versus those that target boys with a content analysis. Findings show that girls’ shows are more food dense and prominently feature baked goods and characters preparing food, while boys’ shows feature less food and have a focus on convenience. We propose possible consequences for eating behavior through priming snacking, social construction of reality, social learning of behaviors, and the development of gender identity schemas concerning food. These proposed consequences have important implications for public policy regarding the portrayal of food in children’s cartoons.

INTRODUCTION
Imagine a father watching My Little Pony with his daughters. His daughters dress up like the Ponies and play pretend with toy figurines of their favorite ponies, so he wants to know more about why they like these characters so much. Since the father wants to protect his daughters from the type of junk food commercials he was exposed to as a boy so they do not have cable and instead stream the program via Netflix. However, the father notices that although there are no food commercials, food plays a major role in the content of the programming. So much so, that it seems every episode includes baking cupcakes. This contrasts sharply with the cartoons he remembers watching when he was a boy. He starts to wonder, “What are the impacts of saturating the screens with sugary baked goods? Does repeated exposure to such cartoon portrayals of food distort how children perceive a normal diet? Will this impact my daughters’ relationship with food later in life?”

We posit that there are four main ways that the portrayal of food in children’s cartoons can impact their eating behavior. First and most immediately, children may be impacted by a snacking priming effect, where viewers are primed to consume more snacks when food is shown more frequently and seek certain flavor profiles when a corresponding food is show. Second, the portrayal of food in cartoons may impact children’s construction of reality, such that repeated exposure to shows that disproportionately feature unhealthy foods will impact the viewers’ conception of a “normal” diet. Third, children may learn to mimic food related behaviors portrayed in the shows that they watch, such that girls will be more likely to prepare and share food in their play acting while boys will be more likely to fight or compete over food. Finally, children might encode the foods portrayed in their favorite shows onto their “girl/ female” or “boy/ male” identities in a way that they associate baking cupcakes for friends as a vital part of being female or getting pizza with friends to celebrate a victory with being male, which could results in life long impacts on food decisions.

What’s the Difference? Content Analysis
Casual observation suggests that there are significant, measurable differences in how food is portrayed in cartoons targeted at girls compared to those targeted at boys. In many female-targeted children’s programs, baked goods are often key elements of story lines. For example, during a typical episode of “My Little Pony” one would likely witness Pony A bake cupcakes for Pony B to celebrate her birthday or perhaps to make her feel better about something bad that happened. On the other hand, during male based children’s programs, food is usually made by some non-character and used to refuel after a fight and/or celebrate a victory. For example, during a typical episode of “Teenage Mutant Ninja Turtles,” the
Turtles eat delivered pizza to refuel after a fight and celebrate their most recent victory over their enemy, the Shredder.

To our knowledge there are very few content analyses that examine how food is portrayed in children’s cartoons (Korr 2008, Najjar 2010), and none that specifically look at how food is portrayed in cartoons targeting boys vs how food is portrayed in cartoons targeting girls (Lynch 2012). In study 1a, we conduct a content analysis on a sample of programs that clearly target either boys or girls and have a strong merchandising component. We focus on shows with extensive merchandise in stores for two reasons. First, they are unapologetic in targeting one gender or the other. Second, children are more likely to interact with these characters during toy play and more likely to imagine themselves as these characters during costumed play time and therefore likely to identify more strongly with these characters. We find significant differences in the amount of time food is on screen, the types of foods presented, and food related behaviors such as preparation and serving in cartoons targeting girls compared to those targeting boys.

Worse than Commercials?

Most studies of the impact of commercial television on the dietary habits of children focus on food advertisements shown during breaks in children’s programming. However, casual observation of the commercials shown during breaks in children’s programming in North America today suggests that exposure to unhealthy foods may actually be higher during the programming itself than during the commercial breaks. Study 1b sets out to explore the content of advertisements appearing during commercial breaks in several of the previously studied shows in order to quantify important measures such as percent of time food is on screen and the amount of commercials devoted to food. These findings will then be compared to the findings from Study 1a in terms of percentage of time food is on screen and what types of foods are shown.

Priming Snacking Behavior

There has been much attention to the correlation between watching TV and increased BMI in children. However, most research has focused on the impacts of food advertising, but not the actual programming itself (Cairns et al. 2013). One possible mechanism that seeing food on television primes is snacking behavior. In fact, there is some evidence that food advertisements prime increased snacking behavior compared to non-food advertisements (Harris et al. 2009). However a longitudinal study by Beales and Kulick in 2013 found no significant difference in BMI between children that watched commercial versus noncommercial television.

We propose that the food shown in programming will also prime an increase in snacking behavior. This would explain why Harris et al. observed a significant difference in snacking behavior due to food advertisements, but Beales and Kulick failed to find a significant difference in BMI between viewers of commercial versus noncommercial television, since they did not control for differences in the amount of food featured in the programming itself.

**H1:** Viewers watching programming that features food extensively will consume more of an offered snack than viewers that watch programming that does not feature food.

Additionally, it is possible that seeing a particular type of food with a certain flavor profile will lead to a preference for snacks with a similar flavor profile (Anschutz et al. 2009). We posit that when viewers see cupcakes and candy, which is featured heavily in girls’ programming, they will prefer sweet snacks. In contrast, if viewers see pizza or hamburgers, which is relatively more prevalent in boys’ programming, they are likely to prefer salty snack.

**H2a:** Viewers that watch programming that features sweet foods will consume more of a sweet snack relative to viewers that watch programming that features savory food.
**H2b:** Viewers that watch programming that features savory foods will consume more of a savory snack relative to viewers that watch programming that features sweet food.

**Socially Constructed Reality**

It is possible that heavy viewing of food dense cartoons could alter what children view as a “normal” diet. Cultivation theory is a popular framework to explain many of the observed effects of exposure to television programming (Gerbner et al. 1977). According to cultivation theory, there should be a strong positive relation between the amount of television a person watches and holding views of the world that are reflective of stereotyped television images (Gerbner et al. 2002). Research has shown that heavy viewing of a particular genre can impact consumer perceptions of reality. For instance, heavy viewing of soap operas leads consumers to overestimate the percentage of Americans that own certain types of markers of wealth such as those frequently seen in soap operas (O’Guinn and Shrum 1997). We believe that the same principles could be applied to how heavy watching of cartoons may influence perceptions of a normal diet. Specifically:

**H3a:** Heavy viewers of cartoons that target girls will believe that baked goods and sweets make up a larger part of a normal diet than light viewers.

**H3b:** Heavy viewers of cartoons that target boys will believe that convenience foods, like pizza, make up a larger part of a normal diet than light viewers.

**Socially Learned Behavior**

Social learning theory suggests that behavior can be learned from the environment through observational learning (Bandura 1977). Due to the idea of observational learning, social learning theory has become very influential in mass communication (Bandura 2001). If children consume high amounts of gender targeted cartoons, social learning theory posits that these children would learn to behave in ways portrayed in those cartoons, such that girls would learn that baking and sharing are acceptable food behaviors while boys would learn that fighting or competing over food is acceptable behavior. Children tend to pick same gender characters as their favorite (Hoffner 1996) and often play act as their favorite characters with the help of store bought costumes and toys, which would then reinforce these gender stereotypical behaviors. Accordingly, we predict that:

**H4a:** Girls that watch more gender targeted cartoons will be more likely to play act in gender stereotypical ways, such as preparing food and sharing food with others.

**H4b:** Boys that watch more gender targeted cartoons will be more likely to play act in gender stereotypical ways, such as fighting over food as a prize.

**Gender Identity Schema Development**

According to gender-schema theory, children form organized knowledge structures, called schemas, about gender. Children are particularly active in seeking information to build their gender schemas between the ages of 2 ½ and 6 years and start to show increasing gender rigidity (Halim 2016) and tend to seize on any element that may implicate a gender norm and categorize it as either male or female (Martin and Ruble 2004). Trautner et al. (2005) propose a three stage developmental pattern: Learning (preschool-Kindergarten), Consolidation (5-7 years), and Flexibility (8 years plus). Gender rigidity tends to peak during the consolidation phase and is then followed by relative flexibility. There is evidence that as children age, they start to seek out more gender conforming television programming (Cherney and London 2006). Even while children are building their schemas for gender, they start to use them to categorize themselves and others.
These powerful schemas in turn influence the child’s thinking and behavior, and also impact on experiences that children seek out as they learn to identify with one or the other gender (Liben 2016). This is consistent with social identity theory (Tajfel and Turner 1979) which holds that people will act in identity consistent ways and prefer identity consistent products when that identity is made salient (Reed 2004). According to the Identity-based motivation model (Oyserman 2007 and Oyserman 2009) once a choice becomes identity-linked, it becomes automatized and does not require further reflection. Since identity-linked behaviors become automatized, identity-based motivation can have a dramatic impact on food choice and health (Oyserman et al. 2007). Identity-linked food behaviors developed by watching television, such as the associating baking cupcakes as part of being female or celebrating a victory with pizza as part of being male, would therefore have the potential to influence food choices whenever that gender identity is made salient. Based on gender schema theory, social identity theory, and the identity-based motivation model, we predict:

H5a: Preschool aged children (3-5 years old) will show no difference in food preference when a gendered character is shown versus the control.

H5b: Early elementary aged children (5-7 years old) will be more likely to choose gender consistent food when a gendered character is shown next to the food versus the control.

H5c: Adults (18+ years old) will be more flexible in their food preferences in such a way that they will prefer gender consistent food in the control condition. A same gender character will enhance preference for gender consistent food, but an opposite gender character will mitigate preference for gender consistent food versus the control.

STUDY 1A: CARTOON CONTENT ANALYSIS (Partially Complete)
Study 1a provides empirical evidence for our assertion that there are differences in how food is portrayed differently in programming that targets girls versus programming that targets boys. We find that food and food references are more (less) likely to appear in female (male) based children’s programming. This study focuses on current popular cartoons with a heavy merchandising aspect that are available via Netflix. We chose shows with strong toy tie-ins because toy manufacturers are often explicit about the target audience for their products and segment their markets by gender. The four selected shows for boys are: Lego Ninjago: Masters of Spinjitzu, Marvel’s Avengers Assemble, Star Wars: Clone Wars, and Transformers Prime. The four selected shows for girls are: Barbie Life in the Dreamhouse, Lego Friends, Littlest Pet Shop, and My Little Pony.

Procedure and Design
The current study focuses on recent popular shows with a strong merchandising aspect. During the time of data collection all shows were still in their original syndication with the exception of Star Wars: Clone Wars which ended in 2014. The selected shows are either inspired by popular children’s toys or have inspired wildly successful children’s toys (see Table 1). The reason for choosing shows with strong toy tie-ins is that toy manufacturers are often very explicit about the target audience for their products, and segment their markets by gender.
Table 1: Selected Shows

<table>
<thead>
<tr>
<th>SHOW</th>
<th>TARGET</th>
<th>YEARS</th>
<th>CHANNEL</th>
<th>TOY MFG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barbie: Life in the Dream House</td>
<td>Girls</td>
<td>2012- Present</td>
<td>Barbie.com</td>
<td>Mattel</td>
</tr>
<tr>
<td>Lego Friends</td>
<td>Girls</td>
<td>2014- Present</td>
<td>Netflix</td>
<td>Lego</td>
</tr>
<tr>
<td>Lego Ninjago: Masters of Spinjitzu</td>
<td>Boys</td>
<td>2011- Present</td>
<td>Cartoon Network</td>
<td>Lego</td>
</tr>
<tr>
<td>Littlest Pet Shop</td>
<td>Girls</td>
<td>2012- Present</td>
<td>Hub/ Discovery Family</td>
<td>Hasbro</td>
</tr>
<tr>
<td>Marvel: Avengers Assemble</td>
<td>Boys</td>
<td>2013- Present</td>
<td>Disney XD</td>
<td>Hasbro</td>
</tr>
<tr>
<td>My Little Pony: Friendship is Magic</td>
<td>Girls</td>
<td>2010- Present</td>
<td>Hub/ Discovery Family</td>
<td>Hasbro</td>
</tr>
<tr>
<td>Star Wars: Clone Wars</td>
<td>Boys</td>
<td>2008-2014</td>
<td>Cartoon Network</td>
<td>Hasbro</td>
</tr>
<tr>
<td>Transformers: Rescue Bots</td>
<td>Boys</td>
<td>2012- Present</td>
<td>Hub/ Discovery Family</td>
<td>Hasbro</td>
</tr>
</tbody>
</table>

Publicly funded shows such as Sesame Street, Daniel Tiger’s Neighborhood, and Sid the Science Kid were excluded since they often intentionally craft messages about healthy eating. Early childhood education is the main reason these shows are produced and nutrition education is considered an important part of that scope. In contrast, the shows selected for this study were produced wholly, or in part, to boost toy sales. Due to their commercial nature that are not bound by public funding or public policy oriented requirements. As a result, these shows tend to reinforce gendered food associations.

We randomly selected three episodes from the first season of each show using the random number generator from www.random.org. While the authors are not aware of a study that provides a recommendation for the minimum number of episodes needed to gain a sufficient sample to generalize about the portrayal of food in a particular show, work on how sex is portrayed in television shows suggests that 3-5 episodes provides an adequate sample for content analysis to generalize about the total amount of sex portrayed for an entire season of a particular television show (Manganello et. al 2008).

Each episode was then watched twice by a single coder via the Netflix streaming service. During the first viewing, the coder marked the time of every food reference, and captured the following information:

1. Program Info: Name, Year, Season, Episode, Format, Length, Time of Reference
2. Food: Name of food, food group, Brand Name
3. Character: Subject, Action, Object
4. Purpose: Reason for eating/ showing/ naming food, Food related comments
5. Presentation: Consumptive, Preparatory, Serving, Verbal, Visual, Positive/ Negative
6. Environment: Location, Meal Occasion
7. Manner: Speed, Posture, Utensils

A consumptive reference was defined as showing a character physically ingest an object, however, the data may be recoded to include references where actual consumption is implied since this occurred quite frequently and still leaves viewers with the idea that a particular food or quantity is part of the characters normal diet. A preparative reference was initially defined as showing a character prepare food, but was later expanded to include serving, or shopping for ingredients to make food.

During the second viewing, the coder used a stop watch to time the total amount of time that food or a food shaped object, such as signs or toys shaped like food, was visible on the screen. Some episodes that only had a small number of food references were not re-watched in entirety, but only the scenes that included a food reference.
Findings

Average Time Food On-Screen

The clear finding of study 1a, is that TV shows based on toys targeted towards girls are extremely food dense. On average, some food or food shaped object was on screen for 355 seconds, or about 26.4% of the total runtime of an average episode of the girls’ shows studied. In contrast, the TV shows based on toys targeted towards boys showed food on screen for an average of 76 seconds, or about 5.7% of the total runtime of an average episode. The difference in the percentage of time food is on screen for each episode by target gender is statistically significant according to an independent samples t-test, $t(22) = 3.107, p = .005$. This provides support for H1 that there would be more food in shows targeted towards girls. Further, the boys’ average was driven upwards by one outlier episode of Transformers: Rescue Bots that feature flying lobsters as the main conflict for the episode, resulting in food being on screen for 43% of that particular episode. When the outlier episode is taken out, the average amount of time with food on screen for the rest of the episodes of boys’ shows is only 31 seconds or about 2.3%.

Figure 1: Average on screen in seconds

Types of Foods

Sweet foods such as cupcakes, pastries, candy, and smoothies featured very prominently in the cartoons targeted towards girls. Cakes, cookies, other pastries, and baking supplies were often show either in a social context, such as a party or at a café, or were shown being prepared by a major character in the girls shows. These products rarely appeared in the boys’ shows, and when they did, they were prepared by a female non-character or anonymous source. In contrast, boys shows were more likely to feature convenience foods such pizza which was useful to refuel after a fight. When sweets were show in boys’ shows, they were usually shown as a prize to fight over.

Cupcakes or cake appeared, or were mentioned, in all twelve of the girls’ episodes. Often a main character was shown baking cake or cupcakes like Stephanie in Lego Friends 1.1 or Barbie in Barbie Life in the Dream House 1.6.1. Other times it was show in conjunction with some sort of celebration, such as a wedding in Lego Friends 1.6, a “Welcome Party” in My Little Pony 1.5, or a birthday party in My Little Pony 1.25 and Littlest Pet Shop 1.7 and even as a birthday cake parade float for a town’s 200th birthday in Lego Friends 1.5. In contrast, cake was only mentioned as a joke (“exploding cake”) in Avengers 1.3 and shown in the back ground in Avengers 1.11.

Cookies were shown in only one boys’ episode, Avengers 1.3, when Red Falcon brought some home baked cookies that his mother made. The other Avengers spent about two minutes fighting over the cookies throughout the episode. The only other reference to cookies occurred when a “Hulked out”
Hawkeye, told Red Falcon “Wanna cry about it? Go home to momma and get me some cookies!” By comparison, cookies were shown in 5 of 12 girls’ episodes and other pastries were shown in 10 of 12 girls’ episodes.

Baking supplies and other pastries were unique to the girls’ shows. Baking supplies appeared in one episode of every girls’ show, but none of the boys’ shows. Likewise, other pastries (pies, scones, muffins, etc.) appeared in ten of the twelve girls’ episodes, but none of the boys’ episodes. Taken together with the frequency of appearance of baked goods in the girls’ show compared to the boys’ shows, it would seem that baking and baked goods such as cupcakes are highly associated with the female identity in these cartoons.

In addition to baked goods, several other sugary treats were featured prominently in the girls shows, including candy (10 episodes), frozen desserts (7 episodes), and fruity juice drinks (9 episodes). In contrast, candy only appeared in one of the boys’ episodes, and a frozen dessert appeared in two of the boys’ episodes.

Candy was frequently in the background in girls’ shows even when it was not prominently featured or consumed. It was only actually consumed in two of the 10 girls’ episodes it was shown. In contrast, candy was only shown in one of the boys’ episodes (Lego Ninjago 1.1) but it was consumed and featured very prominently as the main point of conflict between the protagonists, the ninjas, and the antagonist, Lloyd Garmadon, who tried to steal all the town’s candy. The candy category helps illustrate how girls’ shows are often drenched in food images, while boys shows tend to show food only if there is an important reason to show food.

Fruity juice drinks, including juice, smoothies, and punch were very common in the girls’ shows, appearing in 9 of the 12 observed episodes. In contrast, fruity juice drinks appeared in none of the 12 observed boys’ shows. Smoothies and mixed juice drinks were shown or mentioned in Barbie, Lego Friends, and My Littlest Pet Shop in a social setting such as a café, while punch featured in two episodes of My Little Pony in the context of a party. As mentioned above, fruity juice drinks did not appear in any of the boys’ shows, however there was an ambiguous “Drinks” sign in episode 1.4 of Transformers and a colloquial reference to juice as a euphemism for energy in episode 1.3 of Lego Ninjago.

Consistent with the rest of the sugary foods categories, frozen desserts are much more prominent in girls’ shows appearing in 7 of 12 episodes, while only appearing in 2 of 12 boys’ episodes. Sherbet was featured prominently in Barbie 1.2 as Ken attempted to bring his homemade sherbet to Barbie and her friends who were stuck in an expansive closet. Ice cream was featured in Barbie, Lego Friends, Littlest Pet Shop, and My Little Pony. Milkshakes were mentioned in Barbie 1.3 as a date idea and shown in My Little Pony 1.5 as a way to console oneself. The only times frozen desserts were shown or mentioned in boys’ shows were Transformers 1.4 where a random boy was eating ice cream, and later another boy spilled ice cream on one of the Transformers, and in Transformers 1.25 when a female character asks “But, where’s the FroYo shop?”

Food Related Behavior
There were observable differences in food related behavior between girls’ shows and boys’ shows. Perhaps the most interesting aspect of how food is portrayed in girls’ shows versus boys’ shows, is that food is often used by the main characters in girls’ shows as a way to show other characters love in the form of celebrations, gifts, food preparation, and sharing food or quality time. In contrast the boys’ shows seemed to feature food as a resource such as a prize or source of energy that should be fought over and won.

Celebrations involving food were very common in girls’ shows, appearing in 6 of 12 episodes. Celebrations included a wedding (Lego Friends 1.6), a birthday parties (My Little Pony 1.25 and Littlest
Pet Shop 1.7), a welcome party (My Little Pony 1.5), and civic events (Lego Friends 1.1 and 1.5). The girls’ celebrations featured food very prominently, especially cake, cupcakes, and ice cream. The only celebration that occurred in a boys’ show was a Lobster Festival in Transformers 1.4, and the featured food was a very masculine, wild meat: lobster.

Quality time was yet another category dominated by girls’ shows. The distinction between a celebration and quality time can be blurry, but we defined quality time as any instance where characters ate together as part of spending time together outside of an official planned celebration of an important event. According to this definition, food was shared or mentioned as a fundamental part of quality time in 8 of 12 girls’ episodes and only one boys’ episode. In the girls shows, quality time included socializing in a café (Barbie 1.1 and 1.6, Lego Friends 1.5, Littlest Pet Shop 1.7 and 1.15), eating around a campfire (Lego Friends 1.6), slumber party (Barbie 1.3), and game night (Barbie 1.6). The single instance quality time was shown in a boys’ show was at the beginning of Lego Ninjago 1.1 when the ninjas were playing video games and eating pizza.

Giving some sort of food related item as a gift occurred in 5 of the 12 girls’ episodes and none of the boys’ episodes. Gifts were most prominent in Barbie, which was by far the most materialistic of the shows observed. Ken gave Barbie chocolates in Barbie 1.2, Barbie’s friends gave her various food preparation gizmos as birthday presents in Barbie 1.3 and Barbie dismisses several food preparation gizmos that she received as gifts in Barbie 1.6. In Littlest Pet Shop 1.7 and 1.15 candy was given from one character to another as a treat.

There were two episodes in boys’ shows where the characters literally consume energy. In Avengers 1.22 the antagonist, Galactus, is referred to as the devourer of worlds because he consumes the energy from entire planets using a specialized feeding device. In Transformers 1.25, Optimus Prime discusses how “Energon” is the Transformers’ life blood. Additionally, the only time any food was shown in Star Wars: Clone Wars was in episode 1.20 where a trooper gives a food bar to a starving child. These particularly stark instances help illustrate the general tendency for boys’ shows to show food as a biological necessity rather than a social good as in girls’ shows.

It is particularly interesting to contrast the plot of Lego Friends 1.5 with that of Transformers 1.4 since they both deal with civic celebrations. The plot of Lego Friends 1.5 revolved around the creation of parade floats for part of Heartlake City's anniversary celebration. The main conflict involves Emma not feeling like her friends are listening to her suggestions for the float so she builds a float with another group of girls and the conflict is resolved when both groups of girls combine their floats to make a giant birthday cake float. In contrast, the plot of Transformers 1.4 revolved around recapturing the hundreds of live lobsters that were accidentally given the ability to fly. This contrast is illustrative of a common difference between the plots of boys’ shows and girls’ shows. The boys’ shows tend to focus on some sort of external threat that needs to be neutralized whereas the girls’ shows tend to focus on inter-character conflict which is often resolved through working on some sort of project together.

Finally, there was also a strange naming phenomenon where many characters in the girls’ shows had food in their names, such as Pinkie Pie, Applejack, Applebloom, Granny Smith, and Big Mac in My Little Pony, Buttercream Sundae, Pepper, the Biskit Twins, and Cindeanna Mellon in Littlest Pet Shop, and Gingersnap in Lego Friends. Beyond food in characters actual names, food based nicknames or insults occurred in seven girls’ episodes. In contrast, two of the boys shows included antagonists who were referred to as “The Great Devourer” (Lego Ninjago 1.7) and “The Devourer of Worlds” (Avengers 1.22). Could this strange naming pattern reflect societal pressures for girls to be passively consumed while boys are groomed to actively “devour”? At the very least, this naming pattern suggests that food is much more central to female identity while action orientation is more central to male identity in children’s cartoons.
Discussion
The initial results of this study indicate that there is an important difference in how food is portrayed in shows targeting boys and girls respectively. Boy’s shows promote competitive food behavior and feature convenience foods like pizza while girls’ shows promote preparing and sharing behavior and feature lots of baked goods and other sweets. These differences could lead to the development of gender divergent snacking patterns, beliefs about a normal diet, food related behaviors, identity-based food associations that could influence how viewers make food choices later in life. The author intends to use this study as a basis for further investigation into the development of identity based food attitudes and how activating different identities in consumers can influence their food choices.

STUDY 1B: AMOUNT OF FOOD IN COMMERCIALS TODAY (Proposed)
Given the results of study 1a, it is possible that certain shows that target girls are actually more food dense than the commercials that are typically blamed for the negative health impacts of watching television. As a follow up to study 1a, study 1b sets out test this possibility.

Procedure and Design
The shows in this study include all shows in Study 1a that are still in syndication on network television. Five episodes per shows were selected with a range of airing times and days during the week of July 10-16, 2017 with a special focus on times children might be watching (from 6am to 10pm). Episodes were recorded via DVR and then transferred to a hard drive so that they could be analyzed on a computer. Commercials were coded for product category, brand, percent of time food on screen, food displayed visually, food mentioned.

STUDY 2A: PRIMING EFFECTS OF FOOD IN CARTOONS ON SNACKING (Proposed)
Television food advertising has been shown to prime snacking behavior in both child and adult television viewers (Harris et al. 2009). This study is designed to test H1 by showing viewers either a cartoon that heavily features food, or feature no food and measuring the amount consumed.

Procedure and Design
Undergraduate participants (N=60, 50% female, age range 19-22) from the marketing subject pool were assigned to either the food or no food condition and told to watch the show in order to participate in a focus group on the difference between the stimulus and the cartoons that they watched as a child. The episodes were 22 minutes in length and featured food on screen for about the average time observed in the previous study, 355 seconds for the food condition and 0 seconds for the no food condition. Each participant was given a cup of M&Ms and told to eat as much as they like. At the end of the show, participants were told to go in another room for the focus group while one of the researchers weighed each cup. The consumption DV was measured by weight of leftovers compared to starting weight. After the focus group, participants were instructed to go back to their station and fill out a short questionnaire regarding their level of hunger before the study and how much they liked M&Ms.

STUDY 2B: PRIMING EFFECTS OF SWEET AND SAVORY FOODS ON SNACKING (Proposed)
In order to provide support for H2a and H2b, this study tests whether different types of visual stimulus result in a change in preference for a particular flavor. Specifically, we test if showing sweet food would prime snacking on sweet food and if showing salty food would prime snacking on salty food.
Procedure and Design
Undergraduate participants (N=60, 50% female, age range 19-22) from the marketing subject pool were assigned to either the sweet or salty condition and told to watch the show in order to participate in a focus group on the difference between the stimulus and the cartoons that they watched as a child. The episodes were 22 minutes in length and featured food on screen for about the average time observed in the previous study, 355 seconds. In the sweet condition, mostly sweet foods such as ice cream, cupcakes, and candy were featured. In the salty condition, mostly salty foods such as pizza, fries, and burgers were shown. Each participant was given a bag of salted popcorn and a bag of sweet kettle corn and told to eat as much as they like. At the end of the show, participants were told to go in another room while one of the researchers weighed each bag. The consumption DV was measured by weight of leftovers compared to starting weight. After the focus group, participants were instructed to go back to their station and fill out a short questionnaire regarding their level of hunger before the study and how much they liked the salty popcorn and the kettle corn.

STUDY 3: “NORMAL” DIET WITH STICKER CLOUD (Proposed)
This study is proposed in order to explore what foods children consider to be part of a “normal” diet and provide support for H3a and H3b. Child participants completed a sticker cloud task while their parents complete a survey about the child’s TV watching and diet.

Procedure and Design
At the beginning of the first task, participants were asked to select the character they most want to be like, and the character they least want to be like from a sheet of 20 popular cartoon characters. Next, participants were given a sheet of stickers that included approximately 20 different types of foods and asked to put all of the food items that they thought the character they most wanted to be like would eat next to that character, and what food items they thought the character they least wanted to be like would eat next to that character. Participants were instructed to put a food item in the middle of the two characters if they thought that both characters would like to eat it, and in a trash can if they thought neither would like to eat it.

STUDY 4: FOOD RELATED BEHAVIOR
In order to test H4a and H4b we propose a study where children are offered the opportunity to select toys of their favorite characters in order to play act with a researcher. Food shaped toy accessories will also be available in order to view how the child as the character interacts with the toy food. Observations will be compared against a parent survey of child television watching.

Procedure and Design
The participants were allowed to choose their favorite character toy from a wide variety of licensed characters. Participants were then asked which toy the researcher should play with / character they should pretend to be. The researcher then let the participant direct the action of the scene using a wide variety of food shaped accessory toys. Play acting sessions were video recorded and the following target behaviors were coded: food preparation, sharing, competing over food, and using food as a weapon. Results were compared against the parent survey of child watching to see if there was a correlation between television consumption and gender stereotypical play acting behavior.

STUDY 5: GENDER CONSISTANT FOOD CHOICE (Proposed)
Finally, to test H5a, H5b, and H5c we propose to study choice of gender consistent food when either a same gender character is shown, an opposite gender character is show, or no character is shown. We will test these effects across three age groups. Preschoolers (3-5 years), early elementary students (6-8 years), and young adults (18-22).
Procedure and Design
The participants were divided into either the male character (Teenage Mutant Ninja Turtles), female character (My Little Pony), or no character (control) condition. The characters of Teenage Mutant Ninja Turtles and My Little Pony were chosen, because in addition to being recognized as a characters for boys or girls respectively, they are also strongly associated with the target food choices. Participants were shown a picture of the characters for their condition and asked, “Who are these characters?” “Are these characters for boys or girls?” and “Do you like these characters?” Finally, participants were shown a picture of pizza and a picture of cupcakes and asked “If you could choose to have either pizza or cupcakes with your friends, which one would you choose?”

PUBLIC POLICY IMPLICATIONS
From a public policy standpoint, it is important to assess what types of food messages are communicated in children’s programing and if they need to be treated the same way as food advertisements directed towards children. Legislation, such as bans on advertising to children in Norway and Quebec, and restrictions on advertising food to children in the UK, Greece, Denmark, and Belgium along with the rapid adoption of DVRs and advertisement-free subscription video streaming services, like Netflix, are causing advertisers to reconsider the traditional advertising model (Wilbur 2008). These trends may lead to an increase in product placement of food products in children’s television as manufacturers seek to promote their products and develop brand loyalty (Owen et al. 2013). Even without specific brand messaging, viewing generic soda or candy consumed be a favored character could lead children to want mimic their behavior, which would still lead to an increase in consumption of the target product category. Producers of children’s entertainment should be made aware of the impact their programming can make on its viewers and health advocates could promote healthier alternatives to unhealthy foods. Non-profit media content watch dogs, such as Common Sense Media (www.commonsensemedia.com) could start to include a “Food Rating” in addition to their ratings for sex, violence, consumerism, etc.

FUTURE DIRECTIONS
This paper merely scratched the surface of the topic of identity activation, thinking metaphorically about food, and how that impacts consumers’ choices regarding what and how much they eat. This paper seeks to provide evidence that identity activation can lead to changes in food choice, however metaphorical thinking as the mechanism for evaluating food items was not explored in depth. Additionally, only two identities (boy and girl), and two food metaphors (fuel and love) were explored in this paper. This topic promises to be very broad with the possibility to explore several different social identity and metaphorical ways of thinking about food.

The Identity Value Model and Subjective Valuation of Food
The Identity-Value Model (Berkman et al. 2015) explains failures of self-control, such as cheating on a diet, by proposing that consumers actually have different goals when different social identities are salient. Further, the Identity-Value Model posits that consumers subjectively value actions and products based on the social identity that is salient when the consumer is making a particular decision. For example, a consumer’s “healthy” identity may have a goal to lose weight, and will view food as a means to reach that goal when that identity is activated. However, that same consumer’s “family” identity will view food differently, perhaps as an expression of love or as a means for bonding, in which case they will likely ignore their weight loss goal when deciding what to eat when their “family” identity is activated. This consumer would value home baked cookies much higher if the “family” identity is activated than if the “healthy” identity is activated, which could lead the same consumer to act very differently based on which identity is activated when a consumption decision is made.

I would like to explore how consumers subjectively value food options. In order to test this, I anticipate using willingness to pay as the dependent variable and manipulating social identity activation. If
we can show a consistent difference in willingness to pay when different social identities are activated, we can provide evidence that consumers actually do value food products differently when different identities are salient.

**The Identity Value Model and Metaphorical Thinking**

To further explore this topic, I propose that metaphorical thinking is how consumers experience this subjective valuation. According to Zaltman and Zaltman (2008), consumers tend to think in pictures and metaphors rather than in words and sentences. As consumers process purchase and consumption decisions, we posit that the frame through which they evaluate their options is a metaphor which is pertinent to the identity that is active at the time the decision is being processed. In other words, if a consumer’s family identity is activated, they will view food choices in terms of the metaphor food is love and evaluate their choices based on what is most consistent with showing love through food choices. This is why a diabetic grandma continues to give her overweight grandkids cookies. She literally does not see the cookies as empty calories that will put her grandchildren on a path to diabetes, but rather as an expression of her love because she knows her grandchildren will enjoy eating them.

Again, we would like to explore how consumers subjectively value food options, but this time by manipulating the metaphor directly. We anticipate using willingness to pay as the dependent variable and manipulating instead the metaphor. If we can show a consistent difference in willingness to pay when different metaphors are activated, we can provide evidence that consumers actually do value food products through the lens of metaphorical thinking.

**Identity-Metaphor-Food Schemas**

Little academic research has been done to understand exactly what foods and food metaphors are linked to which particular social identities. Researching this topic will likely require extensive qualitative work in order to get a sense of what types of foods individuals associate with a particular social identity and to parse out what metaphorical frame they use to evaluate food when that identity is activated. There will likely be much cultural variability between consumers as to what foods they associate with each social identity, for instance a consumer from India will likely associate very different foods with their family social identity than a consumer from Finland. However, certain trends are bound to emerge which could help predict food choices in the appropriate social context. Marketers could use this information to better position their products in the minds of the consumers. Consumers in turn, could benefit by being made aware of how they can achieve their health goals by not letting their social identities that have no interest in health dictate their eating decisions.
REFERENCES


“THE BAGGAGE WE CARRY”:
EXPERIENTIAL CONSUMPTION AS PATH TO ANTI-MATERIALITY

Eric Krszjzaniek and Kent Drummond, University of Wyoming

ABSTRACT

This paper seeks to understand the ways in which experiential consumption can lead to a form of anti-consumption behavior it calls “anti-materiality.” The extent literature’s current understanding is that anti-consumption preferences lead to increased experiential consumption, however, through depth interviews with consumers who regularly consume experiences on Bureau of Land Management lands, this study suggests that experiential consumption leads to anti-consumption behavior. Six thematic findings are outlined from participants’ consumption practices and history. These findings help inform a lifecycle model of the experiential consumer, demonstrating how individuals gain identity as part of their consumption of experience, and, moreover, how natural experiential consumption leads to ecologically sustainable behavior changes, as well as anti-materiality. In addition, this helps inform the understanding of the value of unstructured spaces for consumers in order to produce sustainable behaviors. Policy implications and future research streams are also suggested.

INTRODUCTION

Recent research, conducted by the independent firm of ECONorthwest and commissioned by the Pew Charitable Trusts, demonstrated that recreation sites on Bureau of Land Management (BLM) lands in 11 Western states (Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming) generated $1.8 billion for local economies in 2014 alone (Lee, Rempel, & Ainsworth 2016). This revenue was generated in communities within 50 miles of BLM recreation sites and had ripple impacts on the state and national economies as a result. For one particular example, Bureau of Land Management lands were visited nearly 2 million times and the pursuit of quiet recreation generated $102 million in revenue for the local economies of Wyoming alone (Peterson 2016)—considerable totals for a state with a population of just over a half a million persons.

Camping, hiking, backpacking, climbing—these are all considered forms of “quiet recreation,” as well as forms of experiential consumption that demand specialized areas and lands upon which to perform the activities. Though the material goods that these forms of recreation demand are oftentimes one-time purchases, the experiential consumption of them can have a surprisingly high—and sustained—impact on the local economies where such consumption takes place. An understudied market, the experiential consumer that pursues “quiet recreation”—as it has been called—offers some fascinating insights into the ways in which consumer identity, experiential consumption, and sustainability interact in the 21st century.

The popularity of this experiential consumption requires that individual consumers make environmentally conscientious choices and engage in sustainable behaviors to ensure that these lands remain in an acceptable condition to ensure continued and sustained usage. How then do consumers engage in regular experiential consumption while also ensuring that their consumption does not come at a detriment to their own use, as well as a detriment to other consumers? Analyzing and understanding the behaviors of experiential consumers has the potential to shed new light on processes surrounding sustainable consumption, but I propose that this particular context also has the potential to add to our understanding of the link between experiential consumption and anti-consumption. Indeed, as demonstrated below, those that seek out experiential consumption on public lands tend then to also adopt an identity that can lead to participation in anti-consumption behaviors. As a consumption phenomenon, quiet recreation is a rich context that has largely not been studied in the literature on consumption. The quiet recreation that occurs on BLM land exists as a unique context at the intersection of anti-consumption and experiential
consumption; however, the current understanding of both of these fields does not fully explain the phenomenon and potential effects of quiet recreation as practiced.

It is the aim of this study to take an extreme case context and look at it in depth with the hopes of discovering new theories and processes that affect consumers and their consumption habits and/or patterns. In focusing on the context of quiet recreation on public lands, specifically those under the purview of the Bureau of Land Management, research can give insights into the consumer who actively seeks out an experience that is not overtly controlled by the forces traditionally understood in the discipline of marketing.

BACKGROUND

Public Lands and the Bureau of Land Management

Public land is a relatively unique phenomenon to the United States wherein lands are ultimately and technically owned by the citizens of the United States but managed and regulated by federal government agencies. This ownership allows for varying amounts and means of access. Public lands fall under a handful of various management authorities and management philosophies in the United States. This study will focus on the experiential consumption of federally-owned and managed lands, but does acknowledge there is a great deal of experiential consumption that takes place on state-owned and managed lands, as well. The spectrum of federal land management includes those under the purview of the National Park Service, United States Fish and Wildlife Service, United States Forest Service, and the Bureau of Land Management. Together these federal lands comprise around 28% of the total United States land area (Lipton & Krauss 2012). Due to historical factors and settlement patterns, these federal lands disproportionately comprise the landmass of many Western states. As such, the residents of the intermountain West dominate the regular experiential consumption use of these lands, and the study’s sample represents this.

As an extreme case, this study focuses on individuals who recreate on the lands under the Bureau of Land Management (BLM). The lands of the BLM are something of the throwaway places in the federal system, as they are the consolidation of lands that could not be given away during the Disposal Era of federal land policy, whether through Homesteading or given to states to own and manage (Cawley 1993). Created in 1946, the BLM was the summation of combining two existing agencies—the General Land Office and the Grazing Service. Today the agency manages over 247 million acres of federal land in the United States, or approximately one-eighth of the United States, with most of this land located in Alaska, Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

A common characteristic of BLM land is its undeveloped nature. Whereas National Parks have many rules, regulations, boundaries, and amenities, BLM lands will contain very few roads (almost none of them paved), even fewer rules, almost no signage, and non-existent amenities. In spite of—and perhaps because of—these factors, experiential consumption of BLM lands seems to flourish, as financial impact studies, as well as this study, demonstrate.

Experiential Consumption and Anti-Materiality

More and more attention and space has been dedicated to better understanding the phenomenon of experiential consumption in marketing journals over the past 30 years. Touched off by Holbrook & Hirschman’s (1982) discussion of hedonic consumption, marketing scholars have continued to dissect and theorize around the rising popularity of consuming experience in consumer behavior. The primary focus of this research has centered on the explanatory: why have consumers increasingly sought out experience over the material?

A great deal of theory has developed around non-traditional, access-based consumption, wherein the market mediates transactions where no ownership is transferred. Bardhi and Eckhardt (2012) studied
the market phenomenon of car sharing, wherein temporary access to a car is granted to a consumer in exchange for membership fees, noting that the trend of such consumption had risen in the wake of the 2008 worldwide economic crisis. The authors argue that financial instability caused a kind of reassessment of values within consumers—namely what they could afford and what they could not, and therefore what mattered most. A consequence of the reassessment of consumer values, the authors argue, was that this type of consumption gained a kind of sign value in addition to the strict use value such a market arrangement would seem to suggest. Economics and a reordering of values is one path to explain the rise of experiential consumption among consumers, however, this does not necessarily address those who do not seek the use of consumption objects. In addition to growing financial instability, the growing abundance of material goods has shown to have a negative psychological impact on consumers, leading many to seek more satisfaction and happiness from consuming experiences (Van Boven & Gilovich 2003; Carter & Gilovich 2014; Gilovich, Kumar, & Jampol 2015). As such, the consumer shows a desire to escape and is therefore drawn to the consumption of experience and extraordinary experience, rather than materiality (Arnould & Price 1993; Firat & Dholakia 1998; Schmitt 1999; Fine 2010; Taheri & Jafari 2012; Alba & Williams 2013). Lowering the tension of everyday life allows for pleasure and a different kind of experiential consumption that promises identity, connection, and acceptance (Jantzen, Fitchett, Ostergaard, & Vetner 2012; Jantzen, Ostergaard, & Sucena Vieria 2006; Jantzen & Vetner 2010).

Studies of experiential consumption have demonstrated that there are multiple forms of agency that drive the consumer to their act of consumption. The study of responsible experiential consumption under the context of Alternative Break programs demonstrated that such consumption can be an act of moral, rational, social, and ludic agencies, but participation can also be unmotivated by ideological principles (Ulusoy 2016). Agency can also come in the form of escapism, wherein consumers wish to “escape” the market. Kozinets (2002) demonstrated that anti-consumption festivals inherently operate within the market, while the decentralization of power at the center of postmodernism brought into the discipline by Firat & Venkatesh (1996) allowed for new understandings of the ways in which markets pervade. One of the ways consumers try to escape the market, as it were, is to engage in the practice of anti-consumption.

Anti-consumption has many forms and is not simply green, sustainable, alternative, or conscientious consumption; it is instead research focusing on the reasons against consumption, centering on the consumer action of avoiding the traditionally pro-social actions of consumption (Lee, Fernandez, & Hyman 2009; Chatzidakis & Lee 2012). That being said, anti-consumption has also been adopted as a means towards sustainability—locally and globally (Black 2010; Black & Cherrier 2010; Iyer & Muncy 2009; Garcia-de-Frutos, Ortega-Egea, & Martinez-del-Rio 2016). However, some have argued that anti-consumption is more of an attitude and is still a form of consumption (Galvagno 2011).

In regards to brands, there are multi-stakeholder social dynamics at play in the realm of brands that thereby cause brand meanings to ultimately become acts of co-creation (Vallaster & von Wallpach 2013). This decentralization of brand meaning allows for the possibility that anti-consumption can take the form of avoiding certain brands due to bad experiences, individual and brand identity incongruity, or a brand’s perceived bad morals (Lee, Motion, & Conroy 2009). Anti-consumption can also be a form of symbolic consumption (Hogg, Banister, & Stephenson 2009), as a means to establish consumer identity, be it as against exploitative consumption or for the consumer to reposition himself or herself within the society (Cherrier 2009; Iyer & Muncy 2009).

Other research within the anti-consumption paradigm has included consumer motivations for sharing (Belk 2007; Belk 2010). While research on alternative marketplaces has shown that when traditional forms of exchange within the marketplace are eschewed, the purposeful gatherings of collaboration and sharing tend to build purposeful community (Albinsson & Perera 2012). Other modes of sharing, such as toy libraries (Ozanne & Ballantine 2010), have demonstrated that sharing is not in itself indicative of anti-consumption purpose in the consumer.
Grouped with anti-consumption literature often, consumer resistance is not inherently anti-consumption but rather encompasses the behavior of consumers attempting to act outside the market system, as a kind of reaction to systems of power inherent in the dominant market paradigm (Galvagno 2011; Izberk-Bilgin 2010; Poster 1992). The practices of anti-consumption and consumer resistance have also been found to be means of affirming and disaffirming dominant societal values that can take the form of criminal activity to create meaning (Ozanne, Hill, & Wright 1998).

As an action, anti-consumption can take the form of boycotting (Hermann 1992; Hoffman & Müller 2009; Klein, Smith, & John 2004) or a kind of voluntary simplicity wherein consumers want to reduce material consumption and declutter their lives (Craig-Lees & Hill 2002; Hunke 2005; Iyer & Muncy 2009; Ballantine & Creery 2010).

Combining the research streams of experiential consumption and anti-consumption can lead to fascinating insights into consumer behavior. Anti-consumption through experiences rather than active rejection of material possessions has taken the form of sustainable tourism over the recent past—even though the idea of sustainable tourism functioning sustainably within the current ideology of consumerism and neoliberalism has been called into question as inherently unsustainable (Higgins-Desboilles 2010).

Current theory and discussion in marketing literature is drawn towards the idea of anti-consumption as a trend in consumer behavior. While this vein of research is indeed an important and still widely unexplored phenomenon of consumption habits and patterns, I argue that what is regarded often in the literature as anti-consumption is in actuality a move by consumers towards a different form of consumption. Related to these previously discussed forms of anti-consumption, this paper wishes to put forth a different term in the anti-consumption literature to explain the phenomenon being observed: anti-materiality.

This is a phenomenon wherein consumption, and a kind of joie de vivre consumption, continues but the form morphs towards the abstract consumption of emotion and feeling brought about by experience. Some materiality continues to exist, perhaps even flourish, but the material consumed is to accelerate and direct the drive for experience, rather than consumption for consumption’s sake.

In using the term anti-materiality, the author acknowledges that though the consumption of material objects has been largely abandoned, the act of consumption is very clearly still continuing. The act of consumption remains while the form takes on an intangible form.

Current theory would suggest that consumers seek experience in the place of material possessions, use the market to mediate an experience as a way to gain status, or partake in a form of anti-materiality as a means of gaining other benefits. But what of the consumers who do not use the market to mediate their experiences, do not seek status as an end, nor do they come to experiential consumption as a means to reduce material possessions? The literature does not focus on consumers who turn to anti-materiality behaviors as a result of experiential consumption. The trigger for this behavior wherein consumers decide to make a switch from experiential consumption to anti-materiality is not understood and is where this study looks to fill a gap in the literature. By focusing on the consumption behaviors of those who seek experiential consumption on the lands of the BLM, this study focuses on the consumers who do not utilize the market to directly mediate their consumption, who do not seek status as part of their consumption experience, and who oftentimes become anti-materialistic as a result of their experiential consumption.

METHOD

Study Context

Consumers’ relation to and consumption of nature has been discussed in various places in marketing literature (Arnould & Price 1993; Belk & Costa 1998; Canniford & Shankar 2012; Kozinets
but the experiential consumption of public land and what lessons marketers can learn from these practices and rituals remains unexamined. It would seem obvious that experiential consumption studies would focus on the consumption of public lands, seeing as experiential consumption thrives in the liminoid (Turner 1974; Taheri, Gori, O’Gorman, Hogg, & Farrington 2016); however, these liminal, legislated spaces that exist and operate on the periphery of society have been the subject of little to no consumption research. Compounding this research blind spot is the economic influence of such lands on local and regional economies, as discussed earlier. In studying the periphery as a context, and moreover the extreme case of experiential consumption of the lands of the Bureau of Land Management, this study will demonstrate certain processes in operation that may otherwise not be apparent in a more conventional marketing context.

Another interesting aspect in studying the consumption practices of BLM lands is that whereas Kozinets (2002) showed the consumer’s inability to escape the marketplace—demonstrating that makeshift markets even arise in ad hoc communities dedicated to anti-consumption—the experience of quiet recreationists tends to be one of solitude and minimal community. This represents a gap in understanding of market operations within realms of purposeful minimal community and the possible effects it can yield on consumption behaviors. Indeed, the withdrawal from a larger society and community was a common finding in this study’s research, which will be discussed in greater detail below.

Data Collection

This study consisted of participants from a purposive and snowball sample (Glaser & Strauss 1967; Lincoln & Gruba 1985) of individuals who seek out and consume quiet recreation opportunities on a semi-regular basis, as well as individuals who embody a producer role working to protect and maintain the lands. For the purposes of this inquiry, semi-regular basis was defined as an individual who seeks out quiet recreation on BLM land at least once per month. Purposive sampling allowed for collection of data from individuals who are intimately familiar with the consumption of quiet recreation as it relates to lands of the BLM, and snowball sampling enabled participants to bring in other participants who were familiar with the context being studied (Richie & Lewis 2003), allowing for a larger sample size than otherwise may have been possible due to the isolated and individual nature of such a consumption act.

Data collection consisted of semi-structured, depth interviews with 16 participants. The participants ranged in age from 24 to 61 years old, and had various education and work backgrounds. Each interview lasted between 38 minutes and 86 minutes, with seven participants being female and nine being male.

As an initial way to find participants, emails were sent to every BLM office in the United States, and email and face-to-face requests were asked to individuals working within the standalone environment and natural resources school at a university in the Mountain West where public lands comprise almost 50 percent of the state’s land. Such federal land percentages are common throughout the West, where the percentage of federal lands comprising a state can range from 29.9 percent to 84.5 percent, with a majority of this falling under the jurisdiction of the Bureau of Land Management (Vincent, Hanson, & Bjelopera 2014).
Table 1. Descriptive statistics of study participants.

<table>
<thead>
<tr>
<th>Name</th>
<th>Sex</th>
<th>Age</th>
<th>Profession</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elijah</td>
<td>Male</td>
<td>28</td>
<td>Project Coordinator</td>
</tr>
<tr>
<td>Brady</td>
<td>Male</td>
<td>30</td>
<td>Professor</td>
</tr>
<tr>
<td>Mary</td>
<td>Female</td>
<td>30</td>
<td>Writer</td>
</tr>
<tr>
<td>Christopher</td>
<td>Male</td>
<td>41</td>
<td>Butcher</td>
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<tr>
<td>Jennifer</td>
<td>Female</td>
<td>34</td>
<td>Professor</td>
</tr>
<tr>
<td>Karen</td>
<td>Female</td>
<td>30</td>
<td>Place-based Educator</td>
</tr>
<tr>
<td>Matthew</td>
<td>Male</td>
<td>34</td>
<td>Forest Ranger</td>
</tr>
<tr>
<td>Ellen</td>
<td>Female</td>
<td>28</td>
<td>Writer/Radio Host</td>
</tr>
<tr>
<td>Marge</td>
<td>Female</td>
<td>29</td>
<td>Academic Advisor</td>
</tr>
<tr>
<td>Jeff</td>
<td>Male</td>
<td>24</td>
<td>Project Coordinator</td>
</tr>
<tr>
<td>Robert</td>
<td>Male</td>
<td>56</td>
<td>Advisory Council Rep/Business Owner</td>
</tr>
<tr>
<td>Michael</td>
<td>Male</td>
<td>53</td>
<td>Retired BLM Law Enforcement</td>
</tr>
<tr>
<td>Jordan</td>
<td>Male</td>
<td>33</td>
<td>Non-Profit/Conservation Advocate</td>
</tr>
<tr>
<td>Steve</td>
<td>Male</td>
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<tr>
<td>Sarah</td>
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<td>32</td>
<td>Non-Profit/Wilderness Advocate</td>
</tr>
<tr>
<td>Janet</td>
<td>Female</td>
<td>33</td>
<td>Wilderness Society</td>
</tr>
</tbody>
</table>

**Data Analysis**

Analysis of the data occurred throughout the collection process in real time, as notes and relevant literature were continually consulted and put into conversation with one another to better understand the unfolding concepts and theories being investigated (Belk, Fischer, & Kozinets 2013). Notes and original audio were reviewed along with the transcriptions in order to yield a fuller picture of the consumer’s experiential consumption experience. These methods of analysis then led to an iterative three-stage process wherein themes from each individual interview were isolated, then each interview was put into conversation with the other interviews to see what patterns emerged, and finally the data was interpreted into the thematic findings and analysis discussed below (Belk, et al 2013).

**THEMATIC FINDINGS**

Data collected in this study encapsulated each participant’s own unique experiences with the experiential consumption of public land, specifically BLM lands, throughout the United States. Each individual participant’s story was their own and in many ways bore little resemblance to the stories of others interviewed; however, in collecting and analyzing the data, certain themes running through the unique stories became apparent.

This study sought to interview the experiences of both the consumer and the producer of the Bureau of Land Management lands. For the producer, it is a role that also often includes being a consumer of the lands, as well. Whatever the role that participants play while engaging in quiet recreation activities on BLM lands, the patterns of use leading to consumption actions and changes seems to remain constant across the various individuals.

The data shows that there are six interconnected themes that dominate consumers’ experiential consumption of BLM land. The first is a desire for unstructured space, followed by sharing the experience with a deliberate community, and then for consumers’ to begin thinking beyond their self. Eventually, the experiential consumption causes the consumer to internalize the experience as part of their identity and then
they will sometimes begin to compete in anti-materiality practices. Finally, the last major theme is that after the experiential consumption of BLM land, the consumer will become an advocate to others about their experiences and proselytize the consumption.

1) Unstructured Space

Within the realm of public lands, there are various amounts of infrastructure, maintenance, and management that go into making them accessible to consumers. The National Park System has the greatest amount of infrastructure in place to facilitate the easiest consumption experience for its visitors, and, as such, has a great deal of traffic. Amenities like roads, concessions, electrical hookups, paved paths, guardrails, interpretative centers, and a number of other forms of infrastructure mark the National Parks as some of the most structured public lands. This means that the National Parks tend to be the first public land experience for the majority of consumers, and that that experience can feel curated:

“I think a lot of times when people go to National Parks and when I go to a National Park for the first time especially...it's almost like going to a theater show. It's almost like going to see a Broadway show that you've been wanting to see for years and you're like, God this is going to be such a great show and I'm paying my ticket and it's a curated experience and it's an amazing thing.” Ellen, 28

For first time consumers, the National Parks offer a great deal of pleasure, but all of that structure can also become a detriment to some consumers after the first visit:

“National Parks are awesome and I want to visit them all but I also can’t handle it at the same time...you go somewhere like Yellowstone and you’re like, “Why are there these concessions in this place? What the hell is going on?” And you just can’t be there anymore. It’s just too many people to even enjoy it.” Marge, 29

This resentment of structured space and desire to consume the experience of solitude can then lead consumers to the other forms of public land management, such as National Forest, Bureau of Land Management, or Fish and Wildlife lands:

“While basically you have more amenities, you have a lot of people coming and they expect it to be like a theme park too, whereas you can go to the next hill over and...it's not the great skiing, it's all back country. You're more in tune with nature. You're more alone. I guess that's the appeal. Just being somewhere without human impact.” Jordan, 33

“I hate to speak for other people, but I think that what one thing that's appealing about BLM land is the kind of lawlessness, something I encounter a lot through my work, and I can relate to it. I understand it with BLM Land, most of them you can just drive wherever you want to and shoot whatever you want to...There's this frontierism or lawlessness kind of associated with them that I think people...it's very meaningful to them.” Janet, 33

The tension of the known and the unknown, as well as the ability to cast off structure and stricture, seem to be central in the consumer’s desire to seek out unstructured BLM lands. Some of this may derive from childhood experiences of play that the consumer attempts to recapture:

“Again it’s a place like my own that felt more like, my parents never went there, you create your own rules there as a kid. There were no social structures there and I had interesting things to do. When I was a kid we didn’t have as much like Internet and it was a pretty new thing and I was just not interested in [video games]. We went outside in the summer every day like dawn to dusk and it was fun. It’s like, the bottom line, it was fun to be out there.” Karen, 30
For many participants, the experiential consumption of BLM land was a way to counteract the structures that their everyday lives forced them to live within. The experiential consumption experience was then a way to reclaim a balance to the overly structured life they feel they currently live:

“It's just—it’s maybe a balance because if this was an environment in which you live all the time, it's not something you're going to seek out because it's where you are and I think that in part, it pulls with balance to your everydayness of civilization, your cars and your phones and your televisions and your computers and your punch clocks and your nine to fives and all these state highways and your stoplights and all these things are regulated in such a way. You can get away from all that.” Christopher, 41

Ultimately, what the consumption of BLM land, in contrast to those with the structure of National Parks, ends up being is a kind of liberating experience for the consumer. This interpretation of BLM land means that the experiential consumption becomes a process of mass customization and an embrace of the explosion of subjectivity that the postmodern consumer must navigate (Addis & Holbrook 2001).

2) Extricate from Others/Create Deliberate Community

The formation of deliberate ad hoc communities in the arena of BLM lands are not to support commercial interests, but rather are convened to facilitate hedonic enjoyment with the perceived benefit of “healing” the individual from the damaging aspects of civilization. The trope of society and civilization as damaging forces has a deep tradition in the consumption of nature. John Muir, the Scottish-American co-founder of the Sierra Club, famously wrote in the opening to *Our National Parks* that, “Thousands of tired, nerve-shaken, over-civilized people are beginning to find out that going to the mountains is going home; that wildness is a necessity; and that mountain parks and reservations are useful not only as fountains of timber and irrigating rivers, but as fountains of life” (Muir 1901, p. 1). This idea—that individuals could be “over-civilized”—pervades the conversations consumers have surrounding their experiential consumption and the perceived values they gain from such actions:

“Well, I guess friends or family, people you know or that you trust, that share the similar desire to get out there, whether it’s exactly the same or maybe they’re struggling with work or a relation or something and they just need time to clear their head. And that’s what that trip is to them. I think every single person in that group has a little different reason for being out there, but getting out there, I think it heals people or gives them time to think unabridged, it’s not forced, you have time.” Jeff, 24

For some consumers the strains of society, wherein you must interact with people you do not know or trust, can be tiring. Consuming BLM lands allow for the consumer to remove that stress while also focusing on building relationships with others that strengthen them in other ways:

“I think it’s experiencing all those things that I mentioned earlier and it’s nice to share with people that you like and feel comfortable with. Earlier, I was telling you how I move around and I don’t like to talk to people. And I spent the past month talking to people and I need to unwind...but when you’re with people that you feel comfortable with and you’re friends with whereas when you’re alone you don’t feel that same thing that I did whenever you’re on the street talking to strangers. It’s like a strain on my system.” Marge, 29

The idea of using disconnected time to connect with others was a common theme throughout all the interviews. Basically the unstructured nature of BLM land gives some consumers an empty backdrop—without modern distractions—upon which they can better focus on relationships and connections with others that they feel have suffered from daily routines and life:
“We’ve lost I think a lot of ability to both connect with people on a personal face to face human level, [to] have conversations, which is what the wilderness is good for in groups and I get that.” Elijah, 28

“I think, just being in nature gives a lot. A greater sense of solitude but at the same time a connection to the world that they don’t feel in the city. In the city you might—while I was living in the city, and there, you may we feel connected to other people but it takes living with the nature for that other connection...I think it's important because it's good for everyone to unplug, and not just electronics, but in terms of getting away from work and your home, and everything that’s going on in your life. Just relax and enjoy.” Marge, 29

The desire to leave civilization behind is met with an interesting paradox wherein many consumers want to bring others and/or friends onto BLM land. The desire for the consumer to extricate all other humans from their experiential consumption experience on BLM land is consistent with the findings that the changing of the aural experience can be fundamental to a heightened hedonic consumption of experience (Kerrigan, Larsen, Hanratty, & Korta 2014).

3) Beyond Self

The paradox of creating community in areas inherently without structure is an interesting finding in itself, but what is more fascinating is that the study’s data supports the finding that experiential consumption makes others less self-centered. Throughout the interviews, consumers repeatedly discussed the ways in which consumption of the experience of BLM land made them think beyond their own self—even through and seemingly against the isolation and solitude of the experiential consumption.

The process to get beyond the self tends to have to start with the achievement of solitude and/or isolation within the unstructured spaces:

“...when you go into a wild space or wilderness and you go to some place where society does not dwell where it's not the primary function of a space, you have a capacity to have a deeper understanding of existence and appreciation for other living things or entities in the world that aren't dominated by humans.” Sarah, 32

From being outside of society, consumers seem to then focus in on the requirements for their own living. Meeting the basic needs of living, after stripping away the comforts and the rest of the upper hierarchy of needs offers a mental clarity to consumers:

“So I think that in regular life a lot of times I tend to have a lot of thoughts and worries racing around my head. And I think by enough days out in the Colorado trail I got to this point where the only thing I was worried about was the blisters on my feet. Or the biggest drama of the day was whether I remembered—whether my lighter will work to light my stove that night. And that was like huge drama, and that was it, and my world just zeroed in on that stuff and it wasn't like an anxious—it wasn't being anxious about abstraction, it was being—it was like having real feeling about things happening right now here which is such a different thing for me personally.” Ellen, 28

“Just this stripping away of all the BS and just kind of being out amongst the birds and the trees and stuff. It has some type of answers there, some type of experience that would balance and/or explain some other part of you...When you think of people that are caught in the suburban and/or urban lifestyle, there's something that they're missing and it's this counterpoint of the natural realm and it's the reason why all of those places exist in the first place, why family vacations are for these places and not to something...” Christopher, 41
The act of mindful living that experiential consumption of BLM land offers allows for the feeling of deeper connections. As some participants described, the stuff of civilized lives, when taken away, allows for a feeling of connection to others and from that a feeling of concern for others. This can take different forms, but the essential experience is that of wanting to preserve what the individual is experiencing so that other consumers may also feel the benefits:

“You can’t cut corners and that’s what we teach and I think that’s what we learn in public land is that when you do something for the public land it’s felt by the public even if that public—we can get into what is public need who has access? How do you get the inner city even know what you’re talking about or feel what you’re talking about but when you build trail and when you restore habitats etc. you are engaging in a legacy and improving something for the public.”

Elijah, 28

From the data it is apparent that a certain amount of transformation occurs from the personal responsibility engendered by the experiential consumption. This responsibility leads to an internalization of responsibility for others, whether that is preservation of experiences for them or figuring out better ways to communicate and connect with one another. All of this leads into the next thematic finding demonstrating that the thoughts beyond the self lead to a new internalized identity for the consumer.

4) Internalized Identity

Just as experiential consumption allows for the stripping away of the comforts of civilization and society, the consumption also allows for the consumer to find new things within him or her self. As such, a further power of these transformational consumption experiences are that the person is able to incorporate a sense of competence into their identity that modern society does not otherwise enable:

“For me, if I feel like there's a lot in my day-to-day life, where I feel incompetent...I think it's good to feel incompetent sometimes because that means you're learning. And I think that you learn a lot when you go backpacking but I think that the rewards in something like backpacking or hiking are so visceral and so immediate. Like if you're hiking a mountain then you either hike it or you don't, you either make it to the top or you don't and there's no gray area. There is no like, “Did I accomplish this, did I please this person, did I do it right did I learn properly?” It's either you make it to the top or you don't...And I think that's true for backpacking all you had to do was hike out and set up your camp and be self-sufficient in a way that you don’t really get to be in regular life.” Ellen, 28

In adding a sense of competence to a consumer’s identity that is lacking outside of the experiential consumption experience, BLM land has the ability to transform the consumer. The unstructured spaces have the ability to transform the consumer through competency accomplishments; however, in preparing for these experiences the consumer can acquire material goods to better facilitate the consumption of the experience. Through the consumption and acquisition of these goods, the consumer furthers their path towards an identity that is that of an experiential consumer. The material goods have the ability to become justifications unto themselves, as one participant elucidated:

“I go a little nuts when you attach something to your personality, to your ethos, to your ethics, you feel you are betraying yourself when you are not using it. In another point too we living alright like your arms, your legs, your brain, you have the gear, you have invested plenty of thousands of dollars into that idiot, you might as well do something with it. So I think there is some guilt going on and you are like come on don't play video games today, go outside, do what you need to do to be a better human.” Elijah, 28
Those that seek the transformative liminoid space of public land may enact rituals and gain identity, but they are not necessarily those of the modern Mountain Man (Belk & Costa 1998), the identity and rituals are those of a consumer managing the pulls of the civilized and the natural. Consumer experience in nature is an outcome of combining romantic narratives and geographical and technological assemblages, uneasy assemblages that undermine romantic narratives, and purifying practices that “mask, purge, or redress problematic features of consumption assemblages” (Canniford & Shankar 2013, p. 1051). The consumer partakes in a purification of belongings first, and then through the ritual of letting go of personal material items begins to purify their experience:

“You are probably thinking about the ways that you interact with the environment a little bit more. Trying to keep that in the forefront of your mind, maybe making changes in your daily life...I think simplicity is a big thing. You’re backpacking, you don’t have a lot...you have the minimum of things and you don’t need other things usually, if you remember to bring everything with you. And yes like that translates to my daily life. Simplicity. Minimalism...Maybe it makes us think about our basements full of shit and how we don’t need to have basements full of shit and getting—it doesn’t need to be material things but also probably other baggage you may carry. Letting things go.” Marge, 29

The rituals of experiential consumption form an intricate and affirming aspect to the consumer’s identity. The rituals performed during the consumption experience become so engrained as part of the identity of the consumer that it then has the effect of spilling over into how they manage their daily lives outside of the experiential consumption. This hangover effect, if you will, has the power to affect the consumption habits and conscious consumption choices of consumers once they exit BLM land, this effect forms the next set of thematic findings.

5) Competition for Fewer Material Possessions

The stripping away of the civilized starts out as a simplified way of living while taking part in the consumption experience. Being forced to carry all of one’s own needs into the unstructured space means a purposeful examination of what is necessary and what can be done without. This mentality leads to a voluntary simplicity out of necessity for consumers who want to focus on the experiences more than decisions regarding style or fashion:

“It’s easier you don’t have to worry about things. You got like one choice of shirt, “Hey what I’m going to wear? That one...’The shirt’...tomorrow I’m going to wear ‘the shirt’, nobody cares...Because everyone is wearing their own shirt...everyone’s in the same boat on the simplicity side. There’s no—you don’t have to worry about what other stuff others might have.” Marge, 29

This purposeful and voluntary simplicity out of necessity of successful consumption experience causes a positive emotion within consumers. A kind of happiness found, the emotion leads the consumer towards the action of reducing more material possessions. It is at this point that we see the interesting turn where experiential consumption begins to lead to purposeful anti-consumption. This turn does not come from a pre-existing anti-consumption ideology possessed by those who have grown to identify with the experiential consumption of public land, but rather it is a branching influence of an identity that consumers have slowly come to embody through experiential consumption:

“...I can see where that ethos comes from...Just like when I was out in the Cascades, I drove out and so I had the gear with me that I needed and enough clothes to do the activities that I needed and I did write a little bit about how I had way too much stuff at home because I was just living in my truck and was perfectly happy...But I don't know. It's hard to always keep it super lean especially if you need to have dress clothes sometimes [laughs].” Mary, 30
In addition, the consumer’s experiential consumption has caused them to reevaluate the items that they bring along on consumption experiences. This reevaluation means the consumer takes a closer look at the life cycle of products, thereby decreasing their consumption while also extending the use of that which they do possess, as one participant noted:

“I don't just like to trash things if they're not usable anymore—it's going to still be used. I just had my mom in town for a week and she couldn't understand why I keep a Ziploc bag there for using them and wash them and reuse them again...One reason why I wash the Ziploc bags in the first place is because on my backpacking trips I have to put a lot of stuff in Ziploc bags to waterproof it. And so I keep those Ziploc bags. And I tell her that, 'hey if it can still close and still seal things, then it's still usable, and there's no reason for me to throw it away.' I think that we leave no trace, and carry only what you need into the back country, it really influences my personal life as well—kind of the way that I choose to approach things.” Brady, 30

All of these consumption behavior changes can add up to a new anti-consumption practice with the experiential consumer—competitive anti-consumption. While previous research has shown that experience can be less competitive than material purchase (Carter & Gilovich 2010), interestingly enough, however, this study's findings show that the consumption of experience can lead to a kind of anti-materiality competition. As one participant noted:

“I think its appeal is also kind of a competition, I think. To be one to have something that lasts very long, to have a down jacket, which is covered in holes, and patches...Or to be like, 'I just bought a van and I'm going to be able to put everything I own in that.' That's just like somebody that I see and I'm like, ‘Dang, I wish I could do that' and then maybe gets the gears moving, ‘Could I do that? Why do I have all that stuff?' So I think it's spurts, and I think it's surrounding yourself with people...that have a lot of those ideologies, and it's definitely rubbed off, and then it's not necessarily an aggressive thing, but I think there's a little, kind of edge or kind of competition, which I think it's cool if that's what you're trying to do. I think it's a healthy way to do it, you surround yourself with someone, they push you to do something else. That's what you want, if that's what you're trying to do.” Jeff, 24

The significance of this competition between experiential consumers is so internalized, that some participants vocalized their own guilt in not taking part in anti-materiality:

“I am a terrible consumer. I have like a grand goal of becoming more of a minimalist, and I love the idea that I could live in a van or something, but the sad truth is that I have so much stuff. I live alone in a sprawling two-bedroom apartment and it's full of stuff. I would say I am a consumer...I feel like, it weighs me down. I want to be able to just go, being able to move around or live on less. It feels like a tether. That I need all these space to have all these things.” Janet, 33

Realizing a sense of contentment or even happiness from simplicity and minimization of material possessions, which is reinforced through successful experiential consumption rituals, the consumer will then look beyond their self to gauge their attempts at simplicity in relation to other experiential consumers. Looking outwards, the consumer then reassess his or her own efforts at consuming less and is driven to consume even less as a form of competition, and not doing so becomes a point of stress and consternation. This thereby reinforces the behaviors of other consumers and the anti-materiality behavior eventually becomes a goal in and of itself separate from the experiential consumption experience.

6) Proselytizing of Experience
The final theme that the interviews uncovered when talking to consumers about their consumption habits was that the experiences oftentimes lead them to become proselytizers of their consumption. This,
essentially, completes the experiential consumption circle for many consumers. Oftentimes consumers were shown how to consume the land experience from another individual or group, and now the consumer goes out with the intention to tell others of their consumption experience:

“"I think a lot of the way I think today has been taught to me and my job today is basically to teach others that there is value in these lands..."” Karen, 30

There is a certain happiness that the consumer attains by sharing these experiential consumption experiences with other potential consumers. Part of the advocacy comes from the thrill of educating others, sharing knowledge that may not be known to others initially:

“I benefited from self-discovery. Most people when they go out to the desert are brought out by other people who are more familiar. Because I was born and raised in the outdoors, I have a comfort with being alone in the outdoors. Most people don't. They get introduced to the outdoors. They get introduced to the desert. All the places that they go are places that other people have been before and they show them all the cool stuff. "Here, okay, we're here now. Check this out. Look at this. Now, walk down over here. See this, see this." I didn't have anyone to do that to me. I did self-discovery. Every time I turned a bend, my heart was thumping because I had no idea what was there. Rather than me telling people where to go, giving them precise GPS coordinates of the destinations, I give them the route network and say, "Go out and self-discover."

Robert, 56

Again we see that the value of the consumption experience is more than just the immediate and internalized benefits to the individual consumer, but it is also the ability of the consumer to share the experience with others directly and indirectly. The importance of the experiential consumption in the consumer’s life leads to an identity of fewer material possessions but also that of something akin to a religious experience whereby the consumer becomes evangelical to the non-practicing and not-yet-awakened experiential consumer:

“It’s not only important to me, but it’s something that I really want to tell other people is valuable. When I come back from these experiences, I want to express to other people how valuable and good they are.” Christopher, 41

The proselytizing consumer is something of the Holy Grail of consumers. What BLM land experiential consumption offers then is the potential for a self-sustained and growing network of sustainable behaviors wherein consumers advocate experiential consumption and then through the experience adopt an identity that leads to altered material consumption behaviors. These behaviors can lead to anti-materiality competition among the community of experiential consumers, which then can lead to consumers advocating to other consumers to partake in experiences rather than anti-consumption behaviors. This organic process of consumer behavior adapting and transformation has the potential to create more lasting and securely internalized identity, leading to more environmentally friendly behaviors among consumers.

ANALYSIS

Through the interviewing process, notes taken, and analysis of the thematic findings of this study, a model of consumer identity and behaviors generated from the experiential consumption of BLM lands emerges. Previous research has focused on the process of experiential consumption (Taheri, Gori, O’Gorman, Hogg, & Farrington 2016), outlining the relationship between the experiential marketing and consumption constructs. However, this past research ignored the implications and influences towards larger consumption practices arising from experiential consumption as this paper has outlined. From the data collected, we begin to see a way to understand the experiential consumption process and its effects on anti-materiality, and a seven-stage model demonstrates the different stages a consumer can go through in regards
to experiential consumption and, eventually, anti-materiality behaviors. This proposed model outlines for the first time what we can refer to as the lifecycle of an experiential consumer.

As illustrated in figure 1, the process begins with the consumer being a neophyte, meaning they have no prior familiarity or understanding about the consumable experience and how they could consume experiences. From this, someone who knows the ins and outs of the experience shepherds the neophyte consumer into the ritual of experiential consumption. After the consumer has been shown how to consume the experience, then the consumer tries to regain the benefits of the experiential consumption. This occurs in two stages—the first stage is where the consumer is not necessarily comfortable with their own skills or expertise, so they consume the experience with others; the second is where they have gained expertise and feel confident to pursue the experiential consumption alone. At this stage, the consumer’s habits and priorities of consumption shift. In the final stage, the experiential consumption becomes ingrained as part of the consumer’s identity and from there they are able to become the shepherds to neophyte consumers, as in the second stage, and begin the process over again for other consumers.

**Figure 1. A model of the experiential consumer lifecycle.**

The Neophyte Stage

Everyone starts out as a neophyte; it’s just a matter of when they leave this stage. For the individuals interviewed in this study this stage lasted anywhere from when they were young and their parents took them camping in National Parks all the way until after college when they took a job with the Forest Service to escape a job they hated. As such, some individuals remember very clearly their lives before they became experiential consumers of BLM land, while others have no memory of having never been this type of consumer.

The Shepherded Stage

This is the key intervention stage, wherein another consumer brings the neophyte into the experiential consumption to bolster their own identity and share their hedonic consumption. The shepherding often occurs from parents, but to some in the study it was college friends or a childhood friends’ parents. As one participant noted:
“But I think it is just being in a different milieu with like you move from doing what your family likes to do or like rebelling against what your family likes to do. As the case might be to doing what your group of friends do. I did have a lot of friends...who were a lot more into Cottage culture and camping culture. There are a lot of families there that do that stuff, just not really mine...When we would sometimes go up, I would go up with friend to Algonquin...That was really eye opening, like that was probably one of the first places. I think that was the first place I ever camped and it was definitely like one of the first places that I did major hiking and stuff like that too, and I was like, “Oh!”” Jennifer, 34

Through the shepherding process, the individual consumer has a moment of discovery—in this instance, an “Oh!” moment where something clicks within the consumer’s consciousness. This leads directly into the next stage wherein the consumer wants to recapture this particular feeling.

**The Recapture Stage**

Once attaining this moment of discovery, the consumer then begins trying to recapture this initial feeling that they were shown. The consumer searching out the experience and a desire to learn more about what more there is to do and see on these lands marks this stage. As this stage can change and evolve, if the first experiential consumption occurred within a National Park, then the consumer will return to see what there is off the beaten path:

“I think that’s why you go for the first time to a place like Yellowstone is to have a curated theatrical show which is not a bad thing to me. Whereas BLM land is not at all, it’s like 0% that way. It’s not curated, it’s not theatrical. It's there.” Ellen, 28

It’s also important to point out the fact that part of this stage of the consumption journey can begin as a direct result of following and emulating the original shepherd. As one participant noted:

“It wasn’t that it super appealed to me like, “I want to go and live on the ground.” Because it's cold as shit and it's not fun anything, it's not. The act of it isn't fun but being outside is incredible. You know like—why do people try cigarettes? Because they see other people doing it, and they think like, “Oh yeah, I’ll try that.” It wasn’t a deep love of nature that made me do it was just, “This is something I've never done, and I want to try it.” It’s better than taking some cigarettes. It's the best addiction I've ever had.” Matthew, 34

Whatever the impetus to recapture the original shepherded experience, the consumer at this stage does not necessarily understand all the ins and outs of the experiential consumption milieu, and therefore will attempt these recapturing experiences with others, which leads into the next stage.

**The Skill-Building Stage**

When the consumer is in the Skill-Building Stage, they are seeking experiential consumption, but they do not feel they possess all the skills and competencies needed to fully pursue the consumption experience they desire. This then means that the consumer will either lean heavily upon their shepherd, or they will find safety and comfort in bringing larger groups along for the journey. One participant explains the different roles and adaptations that individual consumers will fill or perform while on excursions with those who may not feel competent yet:

“If I’m camping with friends who’ve never camped before, I’m going to take on a different role than if I’m camping with people that I’ve camped with before many times, and I know their experience level, and I know I can trust their judgment and decision making. If I’m day hiking with someone I don’t know and we’ve never hiked before and we’re doing a challenge, I’m going...
to be different. I think, because I’m experienced in the outdoors, I can layer it in different ways. I think that is also what I looked up to in Tess...because I was looking for a mentor, a role model to strive to. I feel like I’ve spent enough time that I do feel I’ve achieved that.” Karen, 30

The various skills and roles that consumers perform while being involved in the experiential consumption will expand and grow with repeated consumption. Allowing for competencies to grow organically, the consumer becomes more driven to acquire more knowledge and more experience. This growing proficiency of successful consumption leads the consumer to enter into the Solo Stage.

The Solo Stage

The Solo Stage marks the transformation of the consumer into a kind of individual expert. At this stage the consumer feels confident, competent, and is able to meet all their needs when participating in the experiential consumption they seek. No longer relying upon the help and proficiencies of other consumers, the solo experiential consumer gains an appreciation for experiencing what they seek while alone:

“Initially I was uncertain of my abilities to do it all on my own. But as time has evolved, or as time has gone on and I’ve evolved as a person, I find a greater appreciation for it when I’m alone.” Brady, 30

Certain recognition of self-growth comes from reaching this stage in the process. Feeling empowered, the consumer then reassesses certain self-behaviors and priorities and then can begin to alter them, leading to the next stage of the process.

The Behavior Change Stage

It is at this stage that the consumer really feels there is something to learn from their experiential consumption. This often begins as a kind of overwhelming awe from which the consumer tries to discern deeper meanings:

“It's pretty freaking cool, you know? Nature is awesome and there's just so much to learn and to experience, to observe and absorb, you know? ... It's just like—it's such a stimulating place out there and not in a contrived or premeditated sort of way, the way that—just because we keep using it like civilization can feel or is...it's unstructured and organic, to use a very overused word, but just like spontaneously being itself a part of a whole, like without trying? And all those pieces working together and it's like—I mean, I just feel like there's so much to learn from even just sitting and observing it all.” Mary, 30

In this discernment of lessons from the experience through its consumption, the consumer then becomes more critical of the social moorings and tethers that they leave behind to partake in the experiential consumption:

“I'm not sure how you translate that into a day to day benefit but I think that it does, like if there is still wild lands that are out there and there is still things to be learned, still places to be explored, possibilities are just in general all sorts of things that could occur in the future. I find it beneficial. It keeps us looking.” Michael, 53

This is also the stage wherein the consumer may begin to partake in anti-materiality behaviors and can begin to engage in competitive anti-materiality practices, as have been outlined above. By this stage the formation of an experiential consumer identity has taken hold and has begun to influence anti-materiality behaviors. These actions then lead into the final stage, that of full Identity.
The Identity Stage

In the Identity Stage of the process, the consumer has completely internalized and adopted the role of experiential consumer. Interviewees repeatedly spoke of the important role that seeking public land consumption had taken on in their lives, as well as the ways in which if the consumption did not occur at regular intervals they did not feel like themselves:

“When the outdoors are a large part of your identity, you don't lose that identity, but you stray a little bit from it by getting caught up so much in the day-to-day life when you're not in the outdoors. I think a lot of it comes down to finding yourself. Being able to in the outdoors, get away from it all. That's the biggest benefit for me...A lot of it is about community. I believe that. But I also believe that every person has a need to get away from others, even for a short period of time, to kind of regroup and to find themselves. That's perhaps one of the main parts for me to find myself and recapture that identity that I might have strayed from a little bit. Or that passion that I might have strayed from.” Brady, 30

At this stage the consumer is not only fully prepared to shepherd neophytes into the process, but they also feel a certain obligation of self to ensure that others understand the importance of the experiential consumption. This final stage demonstrates that the consumer’s identity has come to envelop environmentally conscientious actions, prioritization of experience over material possessions, and the dependence upon experiential consumption to feel like a complete individual.

The realization of identity represents the most powerful advocacy for furthering sustainable actions and behaviors in consumers, and it is indeed the essential cog in the understanding of the importance of this model. The consumer that comes to this stage then has the potential to become a powerful instrument in promoting behavior change in other consumers. This model also helps to demonstrate the ways in which experiential consumption can thereby lead to anti-material consumer action without the consumer’s initial belief in such actions being necessary. So powerful is the transformational process of this experiential consumption, in fact, that even those who were shepherded into the experiential consumption practices at adulthood have the ability to internalize and make deep ideological changes to their consumption habits.

DISCUSSION

The greatest implications of this study are that the lands left unstructured and fallow, if you will, within our society have the ability to serve a greater purpose beyond just the economic benefits of the phenomenon of “quiet recreation.”

The current story of public lands is one wherein the profane becomes sacred through consumption. Belk, Wallendorf, and Sherry, Jr. (1989) outlined the ways in which the sacred and profane can be transformed in consumer culture, as well as the ways in which current marketing theory could not explain the actions of consumers who imbue the profane with sacredness. In the case of this study’s findings, the sacredness is placed within unstructured spaces—spaces that do not exist within civilization. Throughout the study participants, as discussed above, placed utmost importance upon their own agency within the blank canvas of the non-built environment when consuming experience.

When discussing the choice of BLM lands over National Parks, consumers largely noted that the National Parks, in their curated nature, present a hyper-real experience of the natural world. This hyperreality is for some consumers the difference between recreation and re-creation of the outdoors. Feeling the parks inauthentic, consumers look for unstructured spaces for experiences not encompassed in the National Park mission. Something akin to a Disneyification of National Parks and structured spaces of public land has had a paradoxical effect of attracting more people to the outdoors while also pushing away those who find them too crowded and curated. The overwhelming data supports that this approach to our Parks is
necessary, however, it leaves many to seek whatever the intangible benefit of the outdoors promises and provides elsewhere.

Similar to the consumer’s transformation of Star Trek into legitimate religion and utopian space (Kozinets 2001), the consumer seeking quiet recreation sacralizes the public lands of the BLM, so as to distance their experience from the utilitarian-driven original purpose of these lands.

What is not necessarily definite are the possible reasons for the initial pursuit of this form of experiential consumption. One possible explanation could be that markets arise first to meet basic needs—as a mechanism to optimize consumer assortments (Alderson 1957)—but once these basic needs are met, then other elements are sought (Bagozzi 1975). After these the realm expands outwards like a Maslow’s hierarchy. When all needs are met, ideas and philosophy become marketable intangibles (Bagozzi 1975; Holbrook & Hirschman 1982), and moving outward from here there becomes an additional concern for the needs beyond the self. This seems to be where post-industrial consumers begin to cast wary eyes on the items that enabled them to achieve their pinnacle, and the effect is to eschew the complex in favor of the simple. The market’s movement to organize and build connections then becomes the consumer’s drive to seek the unstructured and to disconnect. This is what occurs when consumers adopt the experiential consumer identity and then begin to take part in anti-materiality practices.

The findings suggest that this journey for the experience does not demand the spectacle that the National Park System trades in, it only must offer solitude, and with the solitude the consumer is able to construct a purposeful community wherein to change behaviors and to find identity. Through the process of proselytizing experiential consumption and the shepherding of neophyte experiences, consumers can come to change ecologically detrimental behaviors on their own terms. In addition, these changes that the citizen-consumer internalizes become part of their identity, thereby ensuring more permanent environmentally conscious behaviors, and such is the value of understanding the experiential consumer lifecycle.

This self-education肩膀 a very steep burden that other forms of social marketing can only aspire to accomplish. For instance, in the realm of eco-tourism and sustainable consumption, concerns about individuals’ environmental knowledge have shown that green recreation providers have to educate tourists about the environmental impacts of their activities in order to charge a premium for environmentally friendly services (Hudson & Ritchie 2001). In the process outlined in this study, the consumer embodies and controls their education, thereby self-regulating their own activities.

However, it remains to be studied whether or not the pursuit of quiet recreation would allow for the additions and/or increases of certain fees to facilitate better preservation of the areas set aside as unstructured. That being said, the democratic implications of such fees have the potential to be devastating to those who may not have the capital, yet desire certain benefits of the experiential consumption the most.

**POLICY IMPLICATIONS**

What this study’s findings suggest is that the recreational, experiential consumption stakeholder of unstructured public lands may have larger ripple impacts and influences on society than solely recreation. As outlined above, the experience of experiential consumption can transform a consumer’s identity and lead to internalized behavioral changes in consumers that can have very positive effects in regards to environmentally sustainable actions.

The original role of public lands in the United States was as temporary federal government holdings that would be claimed, turned to private property, and homesteaded to meet the needs of an expanding nation’s expanding population (Marzulla 1996). The role of public lands, however, has changed over the many years since the Homestead Act. Now public lands are now officially managed as “Lands of Many
Uses”—whether it be the Forest Service under the Multiple Use and Sustained Yield Act of 1960 or the BLM under the Federal Land Policy and Management Act of 1976.

Legislating that public lands be managed for multiple stakeholders has had the effect of solidifying many long-standing feuds between the many users of the lands. The recreationists are but one stakeholder in the scheme of multiple-use management, and while there are many values inherent in recreationists’ access to public lands, this study only touched on a few of them. However, these benefits are continually put into jeopardy by various movements within state governments by legislators and stakeholder groups. Movements to bring federal public lands under the purview of the states in which they lie is a phenomenon that has occurred cyclically and regularly since the early- to mid-20th century (Cawley 1993). The movements have had different names—the Wise Use movement, the Sagebrush Rebellion—but the purpose has ostensibly been the same: to bring federal lands under states’ control and ownership.

The most recent push for such restructuring came as a theatrical standoff when a group of ranchers took over the Malheur National Wildlife Refuge near Burns, Oregon, for 41 days in early 2016 (Dymburt 2016). Supporters of the idea of land transfer, the ranchers became the visible manifestation of the uneasy and oftentimes distrustful relationship many Western state stakeholders and legislatures have with federal public lands that they use for extraction and agriculture (Healy & Johnson 2016). (For a comprehensive overview on the history of battles surrounding public land usage and management in the West, read R. McGregor Cawley’s Federal Land, Western Anger).

The perennial movements to bring federally-managed public lands under the purview of states, if successful, has the consequence of being at the whims of often cash-strapped state legislatures. This means that states could then decide to transfer their state holdings into the private sector—as has been the case historically. The impacts of such legislative moves are not necessarily easy to comprehend in the abstract, yet what this study demonstrates is that there are greater risks to such legislative moves beyond the immediate economic impact exemplified by the Pew Trusts study on quiet recreation discussed above. The fact that federal land belongs to all citizens of the United States, regardless of income or station, was a recurring pride in almost all study participants, exemplified best in these quotes:

"But when I was unemployed, the thing that I really loved to do was I loved to go to all the monuments and the museums, Smithsonian. It was because I felt like I don't have anything and I have nothing but yet, I feel like I own this. I feel like I have a piece of this...It was interesting for a kid who had nothing to feel like I had something. That's what I feel with public lands.” Robert, 56

“I think it's an enormous benefit to have that public land there. It's a benefit to people who don't necessarily use it, it's a benefit to everybody, it's a benefit to the people like me that live right here but it's also a benefit to the people who live in Virginia, and Florida, and Tennessee, and every place else, that this land is here. Even if they never use it or they never see it, it's still a benefit...Sure it's a benefit from the ecosystem standpoint, and the species conservation, and all that sort of stuff, but I think the American public is wealthy by having access to this public land.”

Steve, 61

The benefits of unstructured and wholly publically-owned spaces, whether for facilitation of experiential consumption or for ecosystem services, are not easily measured and their implications in the field of marketing research have yet to be fully realized. The wealth of the many in this case is quite an impressive and unique part of the United States, in both heritage and image. Impacting citizen-consumers’ views of themselves, as well as their actions regarding sustainability, it is therefore the recommendation of this study, given its findings, that any policies dealing with federally-managed public lands being transferred to state management strongly consider the unintentional adverse consequence such actions could have upon consumer’s sustainable behaviors. Given the long-term process outlined above, the indirect
benefits of public land access far outweigh the short-term financial gains and struggles for state autonomy that these policy initiatives champion.

**FUTURE RESEARCH**

An interesting finding in some of the interviews conducted was that participants tended to seek out the feeling of insignificance from their experiential consumption of public lands. This is a fascinating desire for consumers to consciously seek out, but it falls outside of the scope of this study. For instance, one participant admitted:

"I think a lot of it is when you're in certain moments, when I see the Tetons, and I feel like I'm a small person because, wow there's these 14,000 foot peaks -- almost 14,000 foot peaks right around me, so insignificant, you feel small relative to your surroundings. And I think that's a big part of it as well. That's why I love mountains." Brady, 30

Focusing for a moment directly on the study’s context, the desire to feel insignificant has the potential to be a key factor in explaining the overwhelming statistics showing that public land consumption is primarily the activity of middle- to upper-class, white consumers. It would stand to reason that the findings supporting the idea of disconnecting from society could also mean that some consumers seek that which they cannot attain within society—in this case the feeling of insignificance. Broadly speaking, perhaps if one feels significant within society, they will seek experiential consumption as a means to feel insignificant. It then stands to reason that if experiential consumption of public lands promises a feeling of insignificance, then those who already feel insignificant within society—such as minorities or the politically vulnerable—will not seek out the experiential consumption of public lands as the experience will not be transformative but rather be reaffirming. This potential finding would have tremendous implications for experiential marketing, as well, and deserves further research.

This obviously needs more research and a follow-up study, but the findings of such a study could potentially go a long way towards more effective and efficient marketing of public land usage in the United States. Such findings could also show the importance of inclusion within society to influence more sustainable behaviors, as the findings of this study have shown is possible through experiential consumption of public lands.

**CONCLUSION**

Although many authors have studied the phenomenon of experiential consumption as a means of anti-consumption, no research had yet been done to show the ways in which experiential consumption in itself can lead to anti-consumption behavior, specifically anti-materiality. In focusing on this latter process, this paper adds to the understanding of anti-materiality as a consumer phenomenon, and also puts forth the first attempt at a experiential consumer lifecycle, outlining the process by which a consumer can come to identify with experiential consumption and thereby embody anti-materiality competition and behavior.

This study also highlights the importance of different types of federal public lands to different types of experiential consumers. In emphasizing the importance of unstructured spaces to the experiential consumption experience, the study shows the policy implications of lessening access and transferring the control of said federal lands to state or private control. The benefits of quiet recreation while economically significant to many communities can also have the effect of imbuing consumers with environmentally conscious and sustainable behaviors. Further studies have the potential to further develop and apply the model outlined in this paper as a means to increase consumer sustainable behavior.
REFERENCES


