When Variety among Activities Increases Happiness

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CONTRIBUTION STATEMENT

This research informs the relationship between variety and happiness. First, consumer researchers have shown that variety within a single consumption experience (e.g., viewing photographs, listening to music) can increase enjoyment of those items, and happiness researchers have speculated that variety across people's experiences may increase happiness more generally. Contributing to this prior work, we empirically demonstrate when and why more variety among the activities that fill consumers' day-to-day lives increases (vs. decreases) subsequent happiness, and in doing so, underscore the role of perceived time in variety preferences. Second, this research furthers understanding of the costs and benefits of variety in consumers' lives by identifying a novel way that less (rather than more) variety can be beneficial. In finding that a greater variety of activities undermines consumers' sense of productivity over shorter time periods, we learned that reducing variety over such time periods can serve to boost productivity and as a result, happiness. Third, the findings further knowledge of how consumers should spend time to enjoy greater happiness. Whereas prior work identified certain types of activities that are individually associated with greater happiness, we examine how the variety across activities shapes happiness.

ABSTRACT

Does variety increase happiness? Seven studies examine how the variety among activities that fill consumers' day-to-day lives affects subsequent happiness. The studies demonstrate that it depends on the perceived time within which the activities occur. Over longer time periods (like a day), a greater variety of activities does increase subsequent happiness; however, over shorter time periods (like an hour), variety instead decreases happiness. This reversal stems from consumers' resulting sense of stimulation and productivity during that time. Whereas a greater variety of activities in longer time periods makes that time feel more stimulating (which increases happiness), variety in shorter time periods makes that time feel less productive (which decreases happiness). These effects are robust across actual and perceived variety, actual and perceived time duration, and multiple types of activities (work and leisure, self-selected and imposed, social and solo). Together, these studies empirically confirm that "variety is the spice of life" – but not of an hour.

The pursuit of happiness is fundamental. The American Constitution declares it an inalienable right, people consistently rate it among their most important pursuits (Diener et al. 1995), and it permeates people's daily thoughts (Freedman 1978). Given that consumers want to be happy, what should they *do* to increase their happiness? How should consumers spend their time to maximize the happiness they enjoy from their hours and days? Although research has begun tackling these questions by identifying specific types of activities associated with greater happiness (e.g., Bhattacharjee and Mogilner 2014; Kahneman et al. 2004; Mogilner 2010), research has yet to look across activities to examine how the variety among them shapes happiness. To further guide consumers in their pursuit of happiness, we empirically test how the variety among the activities that fill their day-to-day lives affects subsequent happiness.

Consumers can spend a given amount of time doing more or less varied activities. For example, an hour at work could be spent doing more varied activities (e.g., answering emails and making phone calls) or less varied activities (e.g., answering professional and personal emails). Likewise, a Saturday could be spent doing more varied activities (e.g., running errands, preparing food, and watching football) or less varied activities (e.g., watching football, watching basketball, and watching tennis). Would spending time on more varied or less varied activities subsequently make consumers feel happier?

Decades of research in psychology and consumer behavior suggest a positive link between variety and happiness. People have an intrinsic need for stimulation (Berlyne 1960; Faison 1977; Leuba 1955; Raju 1980; Venkatesan 1977) and are often drawn to varied product assortments (Hoch, Bradlow, and Wansink 1999; Iyengar and Lepper 2000; Mogilner, Rudnick, and Iyengar 2008; Read and Lowenstein 1995; Simonson 1990). Furthermore, consumers report greater enjoyment of hedonic consumption experiences (e.g., listening to music, watching TV,

viewing photographs) when they perceive them to be more varied (Galak, Redden, and Kruger 2009; Nelson and Meyvis 2008; Nelson, Meyvis, and Galak 2009; Ratner, Kahn, and Kahneman 1999; Redden 2008). Although the previous work focused on how variety within a single experience can increase its enjoyment, it hints that incorporating greater variety across the activities that fill consumers' day-to-day lives may increase consumers' happiness more generally. Consistent with this idea, happiness researchers have theorized that incorporating greater variety across experiences should help counter the forces of hedonic adaptation by maintaining people's interest (Lyubomirsky, Sheldon, and Schkade 2005).

The current research examined whether filling time with a greater variety of activities does, in fact, increase subsequent happiness. Results of seven studies show that spending time on more varied activities often leads to greater happiness, but not always. Notably, the effect of variety on subsequent happiness depends on the perceived time within which the activities occur. Over longer time periods (like a day), a greater variety of activities does increase subsequent happiness. However, over shorter time periods (like an hour), a greater variety of activities instead decreases happiness. The studies demonstrate this effect to be robust across actual and perceived variety, actual and perceived time duration, and multiple types of activities (work and leisure, self-selected and imposed). This investigation also provides insight into the reason underlying the reversal: whereas variety over longer time periods makes that time feel more stimulating (which increases happiness), variety over shorter time periods makes that time feel less productive (which decreases happiness).

Our findings make several contributions to the variety and happiness literatures. First, this work informs the relationship between variety and happiness. Previously, consumer researchers have shown that variety within a single hedonic consumption experience can increase

its enjoyment (Galak et al. 2009; Nelson and Meyvis 2008; Nelson et al. 2009; Ratner et al. 1999; Redden 2008), and happiness researchers have speculated that variety across people's experiences may increase their happiness more generally (Lyubomirsky et al. 2005; Sheldon, Boehm, and Lyubomirsky 2012). Going beyond this prior work, we empirically demonstrate when and why the variety among consumers' activities increases subsequent happiness, and in doing so, underscore the role of perceived time in variety preferences (Etkin and Ratner 2013; Galak, Kruger, and Loewenstein 2011; Goodman and Malkoc 2012; Read and Loewenstein 1995). Second, this work furthers understanding of the benefits and costs of variety in consumers' lives (Etkin and Ratner 2012; Etkin and Sela, 2016; Iyengar and Lepper 2000; McAlister and Pessemier 1982). We identify a novel way that less (rather than more) variety can be beneficial: by making shorter time periods feel more productive. Finally, the findings further knowledge of how consumers should spend their time to enjoy greater happiness. Whereas prior work has identified certain types of activities associated with happiness (Kahneman et al. 2004; Mogilner 2010), these findings show how the variety across activities shapes happiness.

HAPPINESS

Happiness, defined as the "experience of positive affect coupled with high life satisfaction" (Diener 1984), has positive consequences across life's domains: work, interpersonal relationships, and health (Lyubomirsky, King, and Diener 2005). Happy people enjoy such professional and interpersonal benefits as enhanced creativity, broader perspective, more friends, and lower divorce rates (Estrada, Isen, and Young 1994; Labroo and Patrick 2009; Lyubomirsky et al. 2005; Okun et al. 1984). Happy people also exhibit better immune functioning (Stone et al.

1994), have more energy (Csikszentmihalyi and Wong 1991), and tend to live longer (Diener and Chan 2011).

Given the myriad benefits of being happy, what people can do to become happier has generated considerable interest in both academic (e.g., Aknin et al. 2013; Bhattacharjee and Mogilner 2014; Carter and Gilovich 2012; Dunn, Aknin, and Norton 2008; 2014; Dunn, Gilbert, and Wilson 2011; Gilovich, Kumar, and Jampol 2014; Larsen and McKibban 2008; Liu and Aaker 2008; Mogilner 2010; Mogilner, Aaker, and Kamvar 2012; Mogilner, Kamvar, and Aaker 2011; Nicolao, Irwin, and Goodman 2009; Van Boven and Gilovich 2003) and popular outlets (Dunn and Norton 2013; Gilbert 2006; Lyubomirsky 2008; Seligman 2011). Although genetics and circumstances account for some of the variance in people's happiness (Argyle 1999; Braungart et al. 1992; Diener et al. 1999; Tellegen et al. 1988), as much as 40% is attributed to intentional activities (Lyubomirsky et al. 2005). How consumers choose to spend their time can thus have a powerful impact on their happiness.

Despite knowing that consumers have considerable control over their happiness, there is still much to learn about how they should spend their time to maximize happiness (Aaker, Rudd, and Mogilner 2011). The little work that has explored happy ways to spend time has primarily focused on the specific types of activities that generate happiness. For example, recent studies show that shared activities produce greater happiness than solo activities (Caprariello and Reis 2013); extraordinary activities produce greater happiness among young people than ordinary activities (Bhattacharjee and Mogilner 2014); exciting activities produce greater happiness among young people, whereas calming activities produce greater happiness among older people (Mogilner et al. 2011, 2012); socially-connecting activities, like socializing and intimacy,

produce greater happiness than work activities (Kahneman et al. 2004; Mogilner 2010); and self-selected activities produce greater happiness than imposed activities (Ransford and Palisi 1996).

Consumers' time, however, is comprised of multiple activities, not all of which individually generate happiness. For example, a Saturday may involve errands and cooking, in addition to catching a sports match on TV and enjoying a meal with family and friends. Similarly, an hour at work might include making final touches to a presentation, as well as responding to fun (and not so fun) emails. Although prior work illuminates the extent to which individual activities elicit happiness, less is known about how the variety across multiple activities affects happiness. How happy will consumers feel looking back on time spent doing more or less varied activities?

VARIETY AND THE ROLE OF TIME

We propose that whether spending time on a greater variety of activities increases or decreases subsequent happiness depends on the perceived duration of time – as longer or shorter – within which the activities occur. With the widespread adoption of paper and electronic planners, consumers often mentally partition time in the same way as calendars when scheduling their activities (Avnet and Sellier 2011; Dai, Milkman, and Riis 2014; Sellier and Avnet 2014). That is, consumers plan their activities with respect to hours, days, and weeks, and they can choose to incorporate more or less varied activities into these different time periods. Although a day is naturally perceived as longer than an hour, because time is subjectively experienced, a given period of time (e.g., an hour) can be perceived as shorter or longer (Ahn, Liu, and Soman 2009; Etkin, Evangelidis, and Aaker 2015; Mogilner, Chance, and Norton 2012; Rudd, Vohs, and Aaker 2012; Zauberman et al. 2010). We argue that beyond the objective duration of a time

period, it is the *perceived* duration of that time which determines consumers' happiness from filling the time with more or less varied activities.

Over longer time periods, we expect that more varied activities will lead to greater happiness. This is because when people repeatedly consume the same items, even positive ones, they tend to adapt and become bored with them (Berlyne 1971; Coombs and Avrunin 1977; Galak, Kruger, and Loewenstein 2013; Nelson et al. 2009; Nelson and Meyvis 2008). People grow tired of eating the same foods (Rolls, van Duijvenvoorde, and Rolls 1984; Rolls et al. 1981), listening to the same music (Ratner et al. 1999), and viewing the same types of pictures (Redden 2008). Variation among items introduces the necessary change to stimulate people and maintain their interest, making hedonic adaptation less likely to occur (Brickman and Campbell 1971; Frederick and Loewenstein 1999). Indeed, prior research shows that perceiving greater variety while repeatedly consuming an item (Redden 2008) or after repeatedly consuming an item (Galak et al. 2009) serves to restore enjoyment of that item the next time it is consumed. Consuming a sequence of items that incorporates greater variety is also recalled as more enjoyable (Ratner et al. 1999; Redden 2008).

Although this prior work focused on people's enjoyment of a single hedonic experience (e.g., eating food, listening to music, looking at pictures), we expect that the variety across multiple activities will likewise affect consumers' assessments of their happiness more generally. Happiness researchers have argued that a variable stream of experiences "keeps things fresh and interesting," and this should help sustain people's overall happiness (Lyubomirsky et al. 2005; Sheldon et al. 2012). Indeed, Sheldon and Lyubomirsky (2012) found correlational evidence that positive changes seen as "adding more variety to my life" were associated with an enduring boost in happiness. Although correlational, these findings suggest that greater variety among

consumers' activities may help counter the forces of hedonic adaptation and increase happiness. We therefore predict that over time periods perceived as longer, greater variety among consumers' activities will increase subsequent happiness by making that time feel more stimulating (i.e., interesting and exciting; Berlyne 1960).

Over shorter time periods, however, we predict that more varied activities will lead to *less* happiness. For one, without prolonged exposure to a stimulus, hedonic adaptation is less of a threat (Frederick and Loewenstein 1999; Galak et al. 2011; Galak et al. 2014; Loewenstein and Angner 2003), and consumers can feel sufficiently stimulated even with limited variety (Berlyne 1960; Menon and Kahn 1995).

Moreover, filling shorter time periods with more varied activities may prove detrimental by decreasing consumers' sense of productivity (i.e., the feeling of having accomplished something during that time; Keinan and Kivetz 2011). This is because it is harder to feel as though one has successfully accomplished a large variety of activities in a shorter amount of time. Consistent with this idea, research in organizational behavior shows that switching between varied tasks requires continued reacquainting with key steps and processes (Cellier and Eyrolle 1992; Schultz, McClain, and Thomas 2003), and because shorter time periods afford limited opportunity to effectively transition (Staats and Gino 2012), performance gets impaired (Allport and Wylie 2000; Bowman et al. 2010; Kushlev and Dunn 2015). Indeed, Staats and Gino (2012) found that assigning workers to a more varied set of tasks in a shorter time period made them less productive. Relatedly, Etkin and Ratner (2012) found that encouraging consumers to consider a more varied set of means shortly before reaching a goal undermined their performance. The well-being literature similarly argues that transitioning from one task to another can pull people out of the highly productive state of "flow" (Csikszentmihalyi 1990).

Since consumers value feeling productive in both work and leisure contexts (Csikszentmihalyi 2000; Csikszentmihalyi and LeFevre 1989; Hsee, Yang, and Wang 2010; Keinan and Kivetz 2011; Kivetz and Keinan 2006), and feeling productive is a critical component of happiness (Reis et al. 2000; Seligman 2011; Sheldon, Ryan, and Reis 1996), we predict that over time periods perceived as shorter, greater variety among consumers' activities will decrease their subsequent happiness by making that time feel less productive.

Notably, irrespective of time period, feeling stimulated and productive both positively contribute to happiness (e.g., Csikszentmihalyi 1975, 2002; Lyubomirsky et al. 2005; Mogilner et al. 2011). That is, regardless of whether a time period is longer or shorter, experiencing that time as stimulating should make people happy, as should experiencing that time as productive. In contrast, we propose that whether a time period is longer or shorter determines how the *variety* among the activities filling that time affects feelings of stimulation and productivity. Because people are more concerned with getting things done and less with becoming bored over shorter time periods (see pilot study in web appendix), we argue that for these shorter time periods, greater variety should decrease feelings of productivity (but not affect stimulation). However, because people are more concerned with becoming bored and less with being able to get things done over longer time periods (see pilot study in web appendix), we argue that for these longer time periods, greater variety should increase feelings of stimulation (but not affect productivity). By determining how variety affects stimulation and productivity, the perceived duration of time within which activities occur should thus dictate whether variety increases or decreases subsequent happiness. Altogether, we specifically predict that greater variety among the activities filling longer time periods will make consumers happier by making that time feel more

stimulating, whereas greater variety among the activities filling shorter time periods will have the reverse effect and make consumers less happy by making that time feel less productive.

OVERVIEW OF STUDIES

Seven studies examined when and why variety among consumers' activities increases (vs. decreases) subsequent happiness – measured following the activities by asking participants to report how happy and satisfied they feel looking back on the time (studies 1a-4) and by asking participants to report how happy and satisfied they feel at that moment (studies 5 and 6). Studies 1a and 1b instructed participants to engage in more or less varied activities over the course of a longer time period (a day; study 1a) or a shorter time period (an hour; study 1b) and then measured their subsequent happiness. Study 2 examined additional shorter time periods (10 minutes, 30 minutes, and an hour) and longer time periods (a day, a week, and a month) and manipulated the variety participants perceived among their activities. Studies 3-6 tested for the underlying roles of stimulation and productivity using both mediation (studies 3, 5, and 6) and moderation (study 4). Studies 5 and 6 also examined whether the perceived (rather than objective) duration of a time period is what determines variety's effect by holding the objective duration constant (an hour in study 5; 15 minutes in study 6) and making that time seem shorter versus longer. Across studies we considered a broad range of activities that fill consumers' day-to-day lives – including purely "work" (study 5), purely "leisure" (study 4), and a mix of work and leisure (studies 1a-3), as well as self-selected (studies 1a-5) and imposed activities (study 6).

STUDIES 1A AND 1B: VARIETY OVER AN HOUR AND A DAY

Studies 1a and 1b tested our prediction that filling longer time periods with a greater variety of activities increases subsequent happiness, but filling shorter time periods with a greater variety of activities decreases subsequent happiness. Because consumers often schedule their activities with respect to hours and days (Sellier and Avnet 2014), and a day is naturally perceived as longer than an hour, study 1a examined the effect of variety over a day and study 1b examined the effect of variety over an hour. Each study consisted of two parts. In the morning, participants were instructed to spend their upcoming day (or hour) doing more or less varied activities. Then, after the given time period had elapsed, we measured how happy participants felt looking back on that time. We predicted that over a day, doing more varied activities would increase subsequent happiness, but over an hour, this effect would reverse.

Design and Method

A sample of U.S. adults (N = 133 in study 1a; N = 86 in study 1b) recruited through Amazon's Mechanical Turk participated in exchange for $5. This participant pool is reliable for experimental research (Goodman, Cryder, and Cheema 2013) and tends to be more representative of the broader population than traditional convenience samples (Buhrmester, Kwang, and Gosling 2011). Two individuals in study 1a and two in study 1b failed to complete both parts of the experiment and were excluded from subsequent analyses, leaving a sample size of 131 in study 1a (53.4% female, ages 19-67, mean age = 34.4) and 84 in study 1b (42.7% female, ages 19-63, mean age = 33.4). Participants were randomly assigned to a high versus low variety condition (vs. control in study 1a).

The studies consisted of two parts. Part one was administered to all participants at 9am EST on a weekday morning. We first measured how happy ("How happy do you feel right now?" 1 = *Not at all happy*, 7 = *Very happy*) and satisfied ("How satisfied do you feel right

now?" 1 = *Not at all satisfied*, 7 = *Very satisfied*) participants felt (Lyubomirsky 2001; Diener 1984). These items were highly correlated (r = .84 in study 1a*;* r = .83 in study 1b) and combined to serve as a baseline measure of happiness.

Then, we manipulated variety by instructing participants how to spend their day (study 1a) or hour (study 1b). In the high variety condition, we told participants to spend the day [hour] doing many different things. In the low variety condition, we told participants to spend the day [hour] doing many similar things. In the control condition (study 1a only), we told participants to spend the day as they normally would.

Part two of study 1a was administered 12 hours later (approximately 9pm EST) and part two of study 1b was administered an hour later (approximately 10am EST). Participants were emailed the link for the second survey and asked to complete it within the hour. This survey measured how happy ("Having spent the past day [hour] the way you did, how happy do you feel right now?" 1 = *Not at all happy*, 7 = *Very happy*) and satisfied ("Having spent the past day [hour] the way you did, how satisfied do you feel right now?" 1 = *Not at all satisfied*, 7 = *Very satisfied*) they felt. These items were highly correlated (r = .87 in study 1a; r = .88 in study 1b) and combined to serve as our dependent measure of subsequent happiness.

To check the variety manipulation, we then asked participants to indicate how much variety there was among their day's [hour's] activities (1 = *Very little variety*, 7 = *A lot of variety*). Validating the manipulation, in study 1a, participants in the high variety condition (M = 5.81, SD = 1.11) reported doing more varied activities over the day than those in the control (M = 3.89, SD = 1.54; $F(1, 128) = 39.92$, $p < .001$), who reported doing more varied activities over the day than those in the low variety condition (M = 2.67, SD = 1.52; $F(1, 128) = 16.62$, $p < .001$). In study 1b, participants in the high variety condition (M = 5.43, SD = 1.41) reported doing more

varied activities over the hour than those in the low variety condition (M = 2.11, SD = 1.10; F(1, 82) = 144.69, p < .001).

Lastly, in this and subsequent studies, we measured demographics (e.g., age, income, marital status, children, etc.) and individuals' optimum stimulation level (OSL; α = .88 in study 1a; α = .93 in study 1b; Raju 1980). Across studies, the focal happiness effect held controlling for this individual difference measure, suggesting that the variety among one's activities influences subsequent happiness over and above one's chronic desire for stimulation (see web appendix for details).

Results and Discussion

Study 1a; a day. A one-way ANOVA on participants' happiness at the end of the day revealed a significant effect of variety (F(2, 128) = 7.53, p = .001). This effect held controlling for baseline happiness (F(1, 127) = 7.56, p = .001), which influenced happiness at the end of the day (F(1, 127) = 33.84, p < .001).

Supporting our prediction, over a day, spending time on more varied activities made participants happier (M = 6.07, SD = .83) than spending time on less varied activities (M = 5.02, SD = 1.70; F(1, 128) = 13.54, p < .001). In addition, spending time on more varied activities made participants happier relative to the control (M = 5.23, SD = 1.29; F(1, 128) = 8.67, p = .004), which did not differ from the low variety condition (F < 1).

Study 1b; an hour. A one-way ANOVA on participants' happiness at the end of the hour also revealed a significant effect of variety (F(1, 82) = 5.91, p = .017), but in the opposite direction. This effect held controlling for baseline happiness (F(1, 81) = 7.17, p = .009), which influenced happiness at the end of the day (F(1, 81) = 35.23, p < .001).

Supporting our prediction, over an hour, spending time on more varied activities made participants less happy (M = 5.17, SD = 1.46) than spending time on less varied activities (M = 5.83, SD = 1.04).

Study 1a provides affirmative empirical evidence for the speculation that doing more varied activities can produce greater happiness. Furthermore, spending a day on varied activities made participants happier than doing whatever they "normally" would (i.e., the control condition), which suggests that strategically incorporating more variety into consumers' activities can in fact make them happier. Importantly, study 1b shows that variety does not always increase happiness. Not only did spending an hour doing more varied activities not increase happiness, but variety instead decreased happiness over this shorter time period.

STUDY 2: HAPPINESS FROM VARIETY OVER DIFFERENT TIME PERIODS

Study 2 tested how variety affects happiness over a broader range of time periods: 10 minutes, 30 minutes, an hour, a day, a week, and a month. In addition, rather than altering the actual variety among participants' activities during this time (as in studies 1a and 1b), study 2 manipulated the perceived variety among recent activities. We predicted that for the longer time periods (a day, a week, and a month), perceiving more variety among activities would increase subsequent happiness, but for the shorter time periods (an hour, 30 minutes, and 15 minutes), perceiving more variety among activities would instead decrease happiness.

Design and Method

Six-hundred forty-five U.S. adults recruited through MTurk participated in exchange for a small payment. Thirteen individuals who failed to complete the study and four who answered "yes" to being distracted were excluded from subsequent analyses, leaving a sample of 628

(40.1% female, ages 18-72, mean age = 31.6). Participants were randomly assigned to a condition in the 6 (time period: 10 minutes, 30 minutes, hour, day, week, month) × 2 (variety: high vs. low) between-subjects design.

First, we manipulated time period by asking participants to think about the activities they had done over the past 10 minutes, 30 minutes, hour, day, week, or month, depending on condition.

Second, we manipulated variety by encouraging participants to perceive more or less variety among these activities (Etkin and Ratner 2012; Etkin and Sela 2016). In the high variety condition, we instructed participants to list different activities they had done. In the low variety condition, we instructed participants to list similar activities they had done (see appendix A for examples of activities listed in each condition). A pretest conducted among a separate sample of MTurk panelists (N = 286, 44.8% female, ages 18-73, mean age = 31.4) using these stimuli supported the variety manipulation. Pretest participants perceived more variety in how their time was spent ("How much variety is there among the activities you did over the past 10 minutes [30 minutes, hour, day, week, month]?" 1 = *Very little variety*, 7 = *A lot of variety*) in the high variety condition (M = 5.36, SD = 1.34) than in the low variety condition (M = 3.56, SD = 1.48; $F(1, 2\ 274) = 112.42$, $p < .001$), and there was no interaction with time period ($F < 1$).

Finally, using the same measures as in studies 1a and 1b, participants indicated how happy (1 = *Not at all happy*, 7 = *Very happy*) and satisfied (1 = *Not at all satisfied*, 7 = *Very satisfied*) they felt looking back on their respective time period. These items were highly correlated (r = .80) and combined to serve as our measure of subsequent happiness.

Results and Discussion

A 6 (time period) × 2 (variety) ANOVA on happiness revealed a main effect of variety

($F(1, 616) = 5.00$, $p < .001$), qualified by the predicted interaction ($F(5, 616) = 6.79$, $p < .001$; see figure 1). Consistent with study 1a, for a day or longer, perceiving more variety among activities increased subsequent happiness. Participants who recalled more (vs. less) varied activities felt happier looking back on their past day ($M_{\text{high variety}} = 5.30$, $SD = 1.15$ vs. $M_{\text{low variety}} = 4.45$, $SD = 1.37$; $F(1, 616) = 11.99$, $p = .001$), week ($M_{\text{high variety}} = 5.30$, $SD = 1.22$ vs. $M_{\text{low variety}} = 4.73$, $SD = 1.30$; $F(1, 616) = 5.85$, $p = .016$), and month ($M_{\text{high variety}} = 5.07$, $SD = 1.15$ vs. $M_{\text{low variety}} = 4.58$, $SD = 1.37$; $F(1, 616) = 4.94$, $p = .027$).

However, consistent with study 1b, for an hour or shorter, perceiving more variety among activities instead decreased subsequent happiness. Participants who recalled more (vs. less) varied activities felt less happy looking back on their past 10 minutes ($M_{\text{high variety}} = 4.51$, $SD = 1.14$ vs. $M_{\text{low variety}} = 4.97$, $SD = .83$; $F(1, 616) = 3.72$, $p = .054$), 30 minutes ($M_{\text{high variety}} = 4.54$, $SD = 1.08$ vs. $M_{\text{low variety}} = 5.01$, $SD = 1.18$; $F(1, 616) = 3.79$, $p = .052$), and hour ($M_{\text{high variety}} = 5.17$, $SD = 1.20$ vs. $M_{\text{low variety}} = 5.59$, $SD = .96$; $F(1, 616) = 4.24$, $p = .040$).

Study 2 provides further evidence that variety often leads to greater happiness, but not always. For the longer time periods (a day, a week, and a month), perceiving more variety among their activities increased participants' subsequent happiness. This effect reversed, however, for the shorter time periods (an hour, 30 minutes, and 10 minutes), where perceiving more variety among their activities instead decreased participants' subsequent happiness. These findings demonstrate that whether variety increases or decreases happiness depends on the time period within which the activities occur.

In line with prior variety research that documents effects of perceived variety above and beyond actual variety (Broniarczyk, Hoyer, and McAlister 1998; Galak et al. 2009; Hoch et al. 1999; Kahn and Wansink 2004; Mogilner et al. 2008; Redden 2008), this study employed a

variety manipulation that influenced perceived variety without changing participants' actual activities (Etkin and Ratner 2012; Etkin and Sela 2016). This approach served two purposes. First, it highlights that people need to perceive the variety among their activities to enjoy the benefits (or detriments) of doing them. Second, it suggests that variety (and not other features that may have differed between conditions) was responsible for the happiness effect in studies 1a and 1b. Confirming this point, an additional study reported in the web appendix (supplementary study 1) showed consistent results when the variety consumers perceived among their activities was measured (rather than manipulated).

Although we argued that the perceived duration of time within which activities occur is what determines whether variety increases or decreases happiness, we wondered when the reversal naturally emerges. The studies reported thus far demonstrate that variety's effect differs for an hour versus a day, but what about time periods of intervening lengths? To address this question, we conducted a version of study 2 (N = 330, 44.5% female, ages 18-75, mean age = 34.4) that examined the effect of variety among participants' activities over the past three, six, and 12 hours. A 3 (time period) × 2 (variety) ANOVA on happiness revealed only an interaction ($F(2, 324) = 5.36$, $p = .005$). For the past 12 hours, perceiving more variety among activities increased subsequent happiness ($M_{\text{high variety}} = 5.31$, $SD = 1.31$ vs. $M_{\text{low variety}} = 4.83$, $SD = 1.26$; $F(1, 324) = 3.73$, $p = .054$), whereas for the past six hours, perceiving more variety among activities decreased subsequent happiness ($M_{\text{high variety}} = 4.73$, $SD = 1.35$ vs. $M_{\text{low variety}} = 5.20$, $SD = 1.06$; $F(1, 324) = 3.84$, $p = .051$), as it did for the past three hours ($M_{\text{high variety}} = 4.76$, $SD = 1.45$ vs. $M_{\text{low variety}} = 5.32$, $SD = 1.33$; $F(1, 324) = 4.73$, $p = .030$). Since 12 hours largely captures consumers' scheduled waking hours in a day, this along with our previous results suggest that the

natural inflection point around which a greater variety of activities increases versus decreases happiness is what consumers consider a "day."

STUDY 3: WHY VARIETY AFFECTS HAPPINESS

Study 3 investigated the mechanisms underlying the effects shown thus far. We argued that a greater variety of activities has its divergent effects on subsequent happiness by making longer time periods feel more stimulating and by making shorter time periods feel less productive. To test these proposed drivers, we followed the procedure of study 2 to manipulate the perceived variety among activities within different time periods (30 minutes, an hour, and a day). In addition to measuring subsequent happiness, we also asked participants to report how stimulating and productive their time felt. We predicted that for the longer time period (a day), perceiving more variety among activities would increase subsequent happiness by making the time feel more stimulating, but for the shorter time periods (30 minutes and an hour), perceiving more variety among activities would decrease subsequent happiness by making the time feel less productive.

This study also extended the prior studies by controlling the number of activities recalled for each time period. People can typically complete more activities during longer time periods than during shorter ones (e.g., study 2 participants listed a greater number of activities in the longer time period conditions than in the shorter ones; $M_{10\text{ minutes}} = 3.08$, $SD = 1.44$, $M_{30\text{ minutes}} = 3.33$, $SD = 1.51$, $M_{\text{hour}} = 4.16$, $SD = 2.43$, $M_{\text{day}} = 4.24$, $SD = 2.27$, $M_{\text{week}} = 4.68$, $SD = 2.34$, $M_{\text{month}} = 4.60$; $SD = 2.32$; $F(5, 618) = 7.81$, $p < .001$), and the number of activities considered could potentially influence variety perceptions. Although listing more or less activities across time periods cannot explain why the variety perceived among those activities would impact

consumers' happiness following a given time period, controlling for activity number offers a more conservative test of our theory. In line with prior work (Etkin and Ratner 2012; Kahn and Wansink 2004; Mogilner et al. 2008), we expected that differences in perceived variety among the same number of activities would determine the happiness those activities afford.

Design and Method

Five hundred fifty-two U.S. adults recruited through MTurk participated in exchange for a small payment. Eight individuals failed to complete the study and were excluded from subsequent analyses, leaving a sample of 544 (36.6% female, ages 18-71, mean age = 30.9). Participants were randomly assigned to a condition in the 3 (time period: 30 minutes, hour, day) × 2 (variety: high vs. low) between-subjects design.

First, similar to study 2, we manipulated time period by instructing participants to list activities they had done over the past 30 minutes, hour, or day.

Second, we manipulated variety while holding the number of activities constant (Etkin and Ratner 2012; Etkin and Sela 2016). In the high variety condition, participants listed two different activities they had done. In the low variety condition, participants listed two similar activities they had done. See appendix B for examples of activities listed in each condition. A pretest conducted among a separate sample of MTurk panelists (N = 168, 48.8% female, ages 19-72, mean age = 32.6) using these same stimuli supported the manipulation (1 = *Very little variety*, 7 = *A lot of variety*). Pretest participants who listed two different activities perceived more variety (M = 5.42, SD = 1.51) in how their time was spent than those who listed two similar activities (M = 3.91, SD = 1.65; $F(1, 162) = 38.96$, $p < .001$), and there was no interaction with time period ($F(1, 162) = 1.66$, $p = .190$).

Third, using the same measures as in the previous studies, we measured how happy (1 = *Not at all happy*, 7 = *Very happy*) and satisfied (1 = *Not at all satisfied*, 7 = *Very satisfied*) participants felt looking back on their time (r = .81).

Fourth, to assess the underlying processes, participants rated the extent to which their time felt productive using four items (productive, accomplished, capable, and competent; α = .92) and the extent to which their time felt stimulating using five items (stimulating, exciting, fun, interesting, and novel; α = .90). The items were presented in a random order across participants and measured on 7-point scales (1 = *Not at all*, 7 = *Very much*). A factor analysis on these items revealed a two-factor solution (eigenvalues > 1), confirming that they reflect two distinct constructs.

Results and Discussion

Happiness. A 3 (time period) × 2 (variety) ANOVA on happiness revealed only the predicted interaction (F(2, 538) = 6.85, p = .001; see figure 2a). Consistent with our prior findings, for a day, perceiving greater variety among activities increased subsequent happiness ($M_{\text{high variety}}$ = 5.26, SD = 1.15 vs. $M_{\text{low variety}}$ = 4.87, SD = 1.45; F(1, 538) = 4.37, p = .037). For the shorter time periods, however, perceiving greater variety among activities decreased subsequent happiness. Participants who recalled more (vs. less) varied activities were less happy looking back on their past 30 minutes ($M_{\text{high variety}}$ = 4.86, SD = 1.45 vs. $M_{\text{low variety}}$ = 5.27, SD = 1.27; F(1, 538) = 4.29, p = .039) and hour ($M_{\text{high variety}}$ = 4.73, SD = 1.25 vs. $M_{\text{low variety}}$ = 5.26, SD = 1.35; F(1, 538) = 7.23, p = .007).

Stimulation. Examining how time period influenced the effect of variety on stimulation, a 3 (time interval) × 2 (variety) ANOVA revealed only a significant interaction (F(2, 538) = 3.64, p = .027). Variety only influenced feelings of stimulation over a day. For the past day, more

varied activities made time feel more stimulating ($M_{\text{high variety}}$ = 4.13, *SD* = 1.45 vs. $M_{\text{low variety}}$ = 3.72, *SD* = 1.43; $F(1, 538) = 3.71$, $p = .055$), but there was no such effect for the past 30 minutes ($M_{\text{high variety}}$ = 3.55, *SD* = 1.51 vs. $M_{\text{low variety}}$ = 3.76, *SD* = 1.46; $F < 1$) or the past hour ($M_{\text{high variety}}$ = 3.60, *SD* = 1.41 vs. $M_{\text{low variety}}$ = 3.97, *SD* = 1.53; $F(1, 538) = 2.85$, $p = .092$).

Productivity. Examining how time period influenced the effect of variety on productivity, a 3 (time period) × 2 (variety) ANOVA revealed only a significant interaction ($F(2, 538) = 3.62$, $p = .028$). Variety only influenced feelings of productivity over the shorter time periods. For the past 30 minutes, more varied activities made time feel less productive ($M_{\text{high variety}}$ = 4.42, *SD* = 1.53 vs. $M_{\text{low variety}}$ = 4.90, *SD* = 1.33; $F(1, 538) = 4.56$, $p = .033$), as it did over the past hour ($M_{\text{high variety}}$ = 4.47, *SD* = 1.40 vs. $M_{\text{low variety}}$ = 4.89, *SD* = 1.59; $F(1, 538) = 3.60$, $p = .058$). There was no such effect, however, for the past day ($M_{\text{high variety}}$ = 4.87, *SD* = 1.38 vs. $M_{\text{low variety}}$ = 4.60, *SD* = 1.65; $F(1, 538) = 1.53$, $p = .216$).

Underlying processes. To test for the roles of stimulation and productivity in driving variety's effects on happiness, we conducted a bias-corrected moderated mediation analysis with both factors entered as simultaneous mediators (model 7; Hayes 2013). Because as expected, we found no difference in variety's effects for 30 minutes and an hour, we combined these conditions for this analysis (results are the same if each is separately compared to the day condition).

The results confirmed our predictions (see figure 2b), revealing significant overall indirect effects of stimulation (*Index* = .24, 95% CI [.06 to .44]) and productivity (*Index* = .24, 95% CI [.07 to .46]). For a day, variety increased happiness by making that time feel more stimulating (*ab* = .14, 95% CI [.06 to .44]) and productivity did not play a role (*ab* = .09, 95% CI [-.05 to .26]). For the shorter time periods, however, variety decreased happiness by making that

time feel less productive (*ab* = -.15, 95% CI [-.26 to -.05]) and stimulation did not play a role (*ab* = -.10, 95% CI [-.21 to .01]).

Study 3 informs why the variety among consumers' activities affects subsequent happiness. Variety influenced feelings of stimulation and productivity, but these effects depended on the time period within which the activities occurred. Whereas perceiving more variety among activities over a longer time period (a day) increased subsequent happiness by making that time feel more stimulating, perceiving more variety among activities over shorter time periods (30 minutes and an hour) decreased subsequent happiness by making that time feel less productive.

Although we found that variety's effects on stimulation and productivity depend on the time period within which activities occur, both were positive contributors to happiness across time periods. Stimulation was positively correlated with happiness for 30 minutes ($r = .54$, $p < .001$), an hour ($r = .62$, $p < .001$), and a day ($r = .66$, $p < .001$), and productivity was also positively correlated with happiness for 30 minutes ($r = .52$, $p < .001$), an hour ($r = .56$, $p < .001$), and a day ($r = .76$, $p < .001$). Together these results support our theorizing that feeling stimulated and productive both correspond to greater happiness irrespective of time period, but that the extent to which variety among activities influences consumers' sense of stimulation and productivity depends on the perceived duration of time within which the activities occur. This explains why variety has divergent effects on happiness in shorter versus longer time periods.

STUDY 4: ROLE OF PRODUCTIVITY IN SHORTER TIME PERIODS

Study 4 further tested the underlying role of productivity in shorter time periods (in this case, an hour). We argued filling shorter time periods with a greater variety of activities

decreases subsequent happiness by making the time feel less productive. If consumers are not concerned with being productive in that time, however, we should not observe the detrimental effect of variety. Even though productivity is valued in many contexts, including leisure (Csikszentmihalyi 2000; Csikszentmihalyi and LeFevre 1989; Keinan and Kivetz 2011), there are some situations in which consumers are explicitly *not* motivated to be productive (e.g., time dedicated purely to being entertained). In this case, our theory suggests that the negative effect of variety on subsequent happiness should be reduced. Accordingly, whether people intend to be productive in shorter time periods should moderate the detrimental effect of variety on subsequent happiness.

To test this, we recruited people at the North Carolina State Fair and asked them to indicate their intention for their time at the Fair: to be productive (i.e., "to check something of their to-do list") or to simply be entertained. We then manipulated the perceived variety among their past hour's activities and measured how happy they felt looking back on that time. In this markedly fun leisure context, we predicted that among people motivated to be productive, perceiving more variety among the past hour's activities would decrease subsequent happiness, as in the prior studies. However, among people explicitly *not* motivated to be productive, we predicted this effect would be attenuated.

Design and Method

Two hundred adults (42.6% female, ages 18-85, mean age = 40.1) recruited at the North Carolina State Fair participated in exchange for $5. Participants were randomly assigned to a condition in the 2 (intention: be productive vs. be entertained) × 2 (variety: high vs. low) between-subjects design, with intention for the hour measured and variety manipulated.

First, we asked participants to indicate their intention for their time at the Fair: to be productive (i.e., "check something off their to-do list") or to simply "be entertained." Not surprisingly, more participants reported intending to be entertained (n = 146) than productive (n = 54).

Second, as in study 2, we manipulated perceived variety by asking participants to list either different or similar activities they had done over the past hour.

Third, using the same measures as in the previous studies, we measured how happy (1 = *Not at all happy*, 7 = *Very happy*) and satisfied (1 = *Not at all satisfied*, 7 = *Very satisfied*) participants felt looking back on their past hour (r = .71).

Finally, to confirm that participants' stated intention for their time at the Fair reflected how they spent their time, we asked, "Over the past hour, to what extent were you trying to get things done?" and "Over the past hour, to what extent were you trying to stay entertained?" (1 = *Not at all my goal*, 7 = *Very much my goal*). Validating our assessment of participants' intentions for their past hour at the Fair, those who had reported an intention to be productive (vs. entertained) were trying to get things done to a greater extent ($M_{\text{productive}}$ = 4.57, SD = 1.95 vs. $M_{\text{entertained}}$ = 3.85, SD = 1.96; $F(1, 196) = 4.73$, $p = .031$), and those who had reported an intention to be entertained (vs. productive) were trying to stay entertained to a greater extent ($M_{\text{entertained}}$ = 5.14, SD = 1.42 vs. $M_{\text{productive}}$ = 4.28, SD = 1.86; $F(1, 196) = 11.74$, $p < .001$). No other effects were significant (p's > .110).

Results and Discussion

A 2 (intention) x 2 (variety) ANOVA on happiness revealed only the expected interaction ($F(1, 196) = 4.73$, $p = .031$; see figure 3). Consistent with our prior findings, among people motivated to be productive, perceiving greater variety among their past hour's activities

decreased subsequent happiness ($M_{\text{high variety}}$ = 5.25, SD = 1.42 vs. $M_{\text{low variety}}$ = 5.90, SD = 1.03; $F(1, 196) = 4.43$, $p = .037$). However, among people who simply wanted to be entertained (and not productive), this effect was attenuated. In this case, perceiving greater variety among their past hour's activities did not decrease subsequent happiness ($M_{\text{high variety}}$ = 5.88, SD = 1.17 vs. $M_{\text{low variety}}$ = 5.74, SD = 1.00; $F < 1$).

Study 4 provides additional evidence for the role of productivity in driving the effect of variety in shorter time periods on happiness. When State Fair attendees were motivated to be productive during their time at the Fair, perceiving more variety among their past hour's activities made them less happy. However, when State Fair attendees were explicitly *not* motivated to be productive (i.e., they simply wanted to be entertained), perceiving more variety among their past hour's activities did not have this detrimental effect. Because variety detracts from happiness by making shorter time periods feel less productive, when productivity is not an objective, variety no longer makes people less happy. Whether people intend to be productive over shorter time periods thus moderates variety's detrimental effect on subsequent happiness.

Notably, the negative effect of varied activities was attenuated – not reversed – which supports our claim that variety's effect on happiness depends on the perceived duration of time within which activities occur. Even among consumers who were explicitly not motivated to be productive, perceiving more variety among their hour's activities did not boost subsequent happiness. This suggests that people felt sufficiently stimulated over this naturally shorter time period to not benefit from the increased stimulation that more variety affords.

Building on these findings, the next two studies provide additional tests of the underlying mechanisms and investigate the role of perceived time in determining how variety affects subsequent happiness. Instead of examining time periods that differ in objective duration (and

thus naturally differ in perceived duration), studies 5 and 6 hold the objective duration of the time period constant and manipulate whether it is perceived to be shorter versus longer (e.g., a short hour vs. long hour).

STUDY 5: VARIETY OVER A LONG OR SHORT HOUR

The previous studies showed that one hour is a naturally "shorter" time period over which variety decreases subsequent happiness by undermining consumers' sense of productivity. If an hour was made to seem longer, however, then variety may no longer decrease happiness by making that time feel less productive. Instead, spending the hour on more varied activities may increase subsequent happiness by making that time feel more stimulating.

To test this, we recruited university students studying in the library before final exams to participate in an hour-long study perceived as "short" or "long." At the beginning of the hour, we manipulated how long an hour seemed and then instructed participants to spend the next hour working on more or less varied class materials. At the end of the hour, we measured how happy participants felt, as well as their feelings of stimulation and productivity. We predicted that spending a shorter hour on more varied material would decrease subsequent happiness by making the time feel less productive, but spending a longer hour on more varied material would increase subsequent happiness by making the time feel more stimulating.

Design and Method

One hundred thirty students recruited at a university library participated in exchange for $10. Due to the field setting, participants' demographic information was not collected. Participants were randomly assigned to a condition in the 2 (time period: short hour vs. long hour) × 2 (variety: high vs. low) between-subjects design.

The study consisted of two parts. Students studying in the library were approached by a research assistant and invited to work on their own class materials as part of an hour-long study in exchange for payment. Part one of the study was administered to those who agreed. First, we manipulated the perceived length of an hour by instructing participants to write a paragraph about how an hour is either a shorter or longer amount of time. A pretest that presented this writing task to a sample of MTurk panelists (N = 110, 45.5% female, ages 18-66, mean age = 33.1) supported the manipulation. Pretest participants reported that their past hour seemed longer ("How long did the past hour feel?" 1 = *Not very long*, 7 = *Very long*) after writing about how an hour is a long amount of time (M = 3.61, SD = 1.95) versus a short amount of time (M = 2.88, SD = 1.62; $F(1, 108) = 4.66$, $p = .033$). Second, we manipulated variety by instructing the students how to spend their next hour. In the high variety condition, we told students to spend the hour working on materials from different classes. In the low variety condition, we told students to spend the hour working on materials from the same class.

Part two of the study was administered an hour later. Participants were again approached by the research assistant and asked to complete a brief survey. This survey measured how happy ("How happy do you feel right now?" 1 = *Not at all happy*, 7 = *Very happy*) and satisfied ("How satisfied do you feel right now?" 1 = *Not at all satisfied*, 7 = *Very satisfied*) participants felt at that moment. These items were highly correlated (r = .70) and combined to serve as our measure of subsequent happiness. To further examine the underlying processes, participants also rated the extent to which the hour felt productive using three items (productive, accomplished, and capable; α = .85) and the extent to which the hour felt stimulating using three items (stimulating, exciting, and engaging; α = .83). From the larger set of items used in study 3, this refined set of six items was selected to more precisely capture the proposed underlying mechanisms. As in

study 3, these items were presented in a random order and measured on 7-point scales (1 = *Not at all*, 7 = *Very much*).

Results and Discussion

Happiness. A 2 (time period) x 2 (variety) ANOVA on happiness revealed a main effect of time period ($F(1, 126) = 4.31$, $p = .040$), qualified by the predicted interaction ($F(1, 126) = 14.76$, $p < .001$; see figure 4). Consistent with our prior findings, when the hour seemed shorter (as it naturally does), doing more varied activities made participants less happy ($M = 3.85$, $SD = 1.20$) than doing less varied activities ($M = 4.73$, $SD = .79$; $F(1, 126) = 12.40$, $p = .001$). However, when we made the hour seem longer, this effect reversed. In this case, doing more varied activities made participants happier ($M = 4.93$, $SD = 1.02$) than doing less varied activities ($M = 4.41$, $SD = 1.07$; $F(1, 126) = 3.81$, $p = .053$).

Stimulation. A 2 (time period) × 2 (variety) ANOVA on stimulation revealed only a significant interaction ($F(1, 126) = 15.86$, $p < .001$). Variety only influenced stimulation when the hour seemed longer. In the long hour condition, more varied activities made that time feel more stimulating ($M_{\text{high variety}} = 4.33$, $SD = 1.07$ vs. $M_{\text{low variety}} = 3.19$, $SD = 1.24$; $F(1, 126) = 14.77$, $p < .001$), but in the short hour condition, there was only a marginal effect ($M_{\text{high variety}} = 3.20$, $SD = 1.36$ vs. $M_{\text{low variety}} = 3.70$, $SD = .93$; $F(1, 126) = 3.02$, $p = .084$).

Productivity. A 2 (time period) × 2 (variety) ANOVA on productivity revealed a main effect of time period ($F(1, 126) = 4.59$, $p = .034$), qualified by a significant interaction ($F(1, 126) = 5.60$, $p = .020$). Variety only influenced feelings of productivity when the hour seemed shorter. In the short hour condition, more varied activities made that time feel less productive ($M_{\text{high variety}} = 4.19$, $SD = 1.13$ vs. $M_{\text{low variety}} = 4.74$, $SD = 1.10$; $F(1, 126) = 4.29$, $p = .040$), but in the long

hour condition there was no such effect ($M_{\text{high variety}}$ = 5.06, *SD* = 1.05 vs. $M_{\text{low variety}}$ = 4.70, *SD* = 1.12; $F(1, 126) = 1.67$, $p = .198$).

Underlying processes. Like in study 3, we tested the proposed underlying processes using a bias-corrected moderated mediation analysis with stimulation and productivity entered as simultaneous mediators (model 7; Hayes 2013). Consistent with our previous findings, we found significant overall indirect effects of stimulation (*Index* = .47, 95% CI [.13 to .94]) and productivity (*Index* = .41, 95% CI [.08 to .85]). When the hour seemed shorter (as it naturally does), variety decreased subsequent happiness by making that time feel less productive (*ab* = -.24, 95% CI [-.54 to -.03]) and stimulation did not play a role (*ab* = -.14, 95% CI [-.40 to .001]). When we encouraged participants to perceive the hour as longer, however, variety increased happiness by making that time feel more stimulating (*ab* = .33, 95% CI [.10 to .66) and productivity did not play a role (*ab* = .16, 95% CI [-.06 to .46]).

Study 5 provides additional evidence for the proposed underlying processes and underscores that it is the perceived duration of time within which activities occur that determines whether variety increases or decreases happiness. When studying for final exams, students who perceived a given hour as shorter were less happy after working on more varied class materials because that time felt less productive, whereas students who perceived that hour as longer were happier after working on more varied materials because that time felt more stimulating. Beyond natural differences in perceived time duration, whether a given duration of time is *perceived* as shorter versus longer determines how variety affects feelings of stimulation and productivity, and thus happiness.

These results also underscore that the effects are based on the variety among activities, rather than any qualitative differences between the activities. For instance, it is possible that

consumers look to fill shorter time periods with different types of activities (e.g., enjoyable tasks) than they do longer time periods (e.g., meaningful tasks). In this study, however, all participants spent the hour doing schoolwork, and how the variety within that work influenced subsequent happiness depended on whether the hour seemed shorter or longer. Furthermore, whereas the prior studies examined a mix of work and leisure activities (see appendices A and B for examples), this study shows that variety can influence consumers' happiness from time spent on purely work activities.

STUDY 6: VARIETY OVER A SHORT OR LONG 15 MINUTES

Study 6 further demonstrated the role of perceived time by manipulating how long a given duration of time (in this case, 15 minutes) was perceived to be. In addition, we determined the specific activities that participants engaged in, and thus had greater control over the actual variety that comprised their time.

In a university laboratory, participants spent 15 minutes performing three activities that differed in variety, and at the end of the 15 minutes, we measured how happy they felt. We predicted that performing the more varied set of activities during this naturally shorter time period would decrease subsequent happiness by reducing feelings of productivity, but viewing the 15 minutes as longer would attenuate these effects.

Design and Method

One hundred and sixty-four individuals recruited at a university behavioral lab participated in exchange for payment. Eighteen participants failed to complete the experiment and were excluded from subsequent analyses, leaving a final sample of 146 (65.3% female, ages 18-58, mean age = 24.5). Participants were randomly assigned to a condition in the 2 (time

period: short 15 minutes vs. long 15 minutes) × 2 (variety: high vs. low) between-subjects design.

First, similar to study 5, we manipulated the perceived length of 15 minutes by instructing participants to write a paragraph about how 15 minutes is either a shorter or longer amount of time. Second, we manipulated the variety of activities performed. Participants were given 10 gummy bears, 10 jellybeans, and 10 M&Ms and had 15 minutes to complete three activities with these candies. In the high variety condition, participants performed a different activity with each type of candy: they evaluated the taste of the gummy bears, named the jellybeans, and organized the M&Ms by color. In the low variety condition, participants performed the same activity (evaluating the taste) with all three types of candy. Thus all participants completed three activities, but the variety among them differed by condition.

After the 15 minutes, participants reported how happy (1 = *Not at all happy*, 7 = *Very happy*) and satisfied (1 = *Not at all satisfied*, 7 = *Very satisfied*) they currently felt (r = .86), and answered the same three productivity items (α = .84) and stimulation items (α = .86) from study 5 (1 = *Not at all*, 7 = *Very much*).

Next, as manipulation checks, participants indicated how much variety they perceived among the candy activities (1 = *Very little variety*, 7 = *A lot of variety*) and how long the last 15 minutes seemed (1 = *Very short*, 7 = *Very long*). Supporting our variety manipulation, participants in the high variety condition (M = 4.05, SD = 1.34) perceived the activities as more varied than those in the low variety condition (M = 3.14, SD = 1.58; $F(1, 142) = 14.61$, $p < .001$), and no other effects were significant (F's < 1). Supporting our perceived time manipulation, participants in the long 15 minutes condition (M = 3.41, SD = 1.91) perceived the 15 minutes as longer than those in the short 15 minutes condition (M = 2.78, SD = 1.36; $F(1, 142) = 4.97$, p =

.027), and no other effects were significant (F's < 1). We also asked participants how hard it was to perform their assigned activities (1 = *Not very hard*, 7 = *Very hard*) and found no significant effects (F's < 1).

Results and Discussion

Happiness. A 2 (time period) x 2 (variety) ANOVA on happiness revealed a main effect of variety ($F(1, 142) = 6.58$, $p = .011$) and a marginal main effect of time period ($F(1, 142) = 3.50$, $p = .063$), qualified by the predicted interaction ($F(1, 126) = 5.63$, $p = .019$; see figure 5). Consistent with our prior findings, when 15 minutes seemed shorter (as it naturally does), doing more varied activities made participants less happy ($M = 3.61$, $SD = 1.61$) than doing less varied activities ($M = 4.88$, $SD = 1.47$; $F(1, 142) = 12.01$, $p = .001$). However, when we made those 15 minutes seem longer, this effect was attenuated, and greater variety no longer had a detrimental effect ($M_{\text{high variety}} = 4.70$, $SD = 1.53$ vs. $M_{\text{low variety}} = 4.75$, $SD = 1.48$; $F < 1$). Not finding the same reversal as in the previous study may suggest that 15 minutes cannot be made to seem sufficiently "long" to require greater stimulation (and thus variety) to increase happiness.

Stimulation. A 2 (time period) × 2 (variety) ANOVA on stimulation revealed only a significant interaction ($F(1, 142) = 4.57$, $p = .034$). Variety only influenced stimulation when the 15 minutes seemed longer. In the long 15 minutes condition, more varied activities had a marginal positive effect on stimulation ($M_{\text{high variety}} = 4.20$, $SD = 1.85$ vs. $M_{\text{low variety}} = 3.49$, $SD = 1.74$; $F(1, 142) = 3.23$, $p = .074$), but in the short 15 minutes condition, there was no such effect ($M_{\text{high variety}} = 3.52$, $SD = 1.49$ vs. $M_{\text{low variety}} = 4.02$, $SD = 1.63$; $F(1, 142) = 1.51$, $p = .221$).

Productivity. A 2 (time period) × 2 (variety) ANOVA on productivity revealed only a significant interaction ($F(1, 142) = 4.03$, $p = .047$). Variety only influenced feelings of productivity when the 15 minutes seemed shorter. In the short 15 minutes condition, more varied

activities made that time feel less productive ($M_{\text{high variety}}$ = 3.43, *SD* = 1.48 vs. $M_{\text{low variety}}$ = 4.21, *SD* = 1.56; $F(1, 142) = 4.49$, $p = .036$), but in the long 15 minutes condition there was no such effect ($M_{\text{high variety}}$ = 4.32, *SD* = 1.46 vs. $M_{\text{low variety}}$ = 4.07, *SD* = 1.56; $F < 1$).

Underlying processes. Like in studies 3 and 5, we tested the proposed underlying processes using a bias-corrected moderated mediation analysis with stimulation and productivity entered as simultaneous mediators (model 7; Hayes 2013). Consistent with our previous results, we found significant overall indirect effects of stimulation (*Index* = .45, 95% CI [.05 to 1.05]) and productivity (*Index* = .31, 95% CI [.02 to .84]). When 15 minutes seemed shorter, variety decreased subsequent happiness by making that time feel less productive (*ab* = -.23, 95% CI [-.64 to -.03]) and stimulation did not play a role (*ab* = -.18, 95% CI [-.54 to .07]). When we encouraged participants to perceive 15 minutes as longer, however, variety did not directly influence happiness, and neither productivity (*ab* = .08, 95% CI [-.11 to .36]) nor stimulation played a role (*ab* = .26, 95% CI [-.04 to .69]).

Study 6 underscores the role of perceived time in determining how variety shapes subsequent happiness. Over a time period naturally perceived as shorter (in this case, 15 minutes), doing more varied activities decreased happiness by making that time feel less productive (even though all participants completed the given tasks). When we made the 15 minutes seem longer, however, variety no longer had this negative effect. These results cast further doubt on the possibility that the previous studies' findings can be explained by qualitative differences between activities filling the shorter versus longer time period conditions.

In addition, these results provide convergent support for our predictions in a lab setting where the actual activities and number of activities participants performed were controlled. Notably, whereas in the prior studies, participants had some choice in the activities they engaged

in, here, the activities were externally imposed by the experimenter. Thus regardless of whether consumers choose the activities that fill their time, the variety among those activities influences how happy they subsequently feel.

GENERAL DISCUSSION

With passing minutes, hours, days, weeks, and months, consumers want to feel happy. But how should they spend their time in order to enjoy greater happiness? While emerging research points to specific types of activities associated with happiness (Bhattacharjee and Mogilner 2014; Kahneman et al. 2004; Mogilner 2010; Mogilner et al. 2011), consumers' time is comprised of multiple activities, not all of which are individually enjoyable. How does variety among the activities that fill consumers' day-to-day lives contribute to their happiness?

To address this question, we empirically examined whether a greater variety of activities increases happiness. Findings from seven studies showed that spending time on a greater variety of activities often makes people happier, but not always. The perceived duration of time within which consumers' activities occur proved to be a key determinant. Over longer time periods (like a day), more varied activities increased happiness. However, over shorter time periods (like an hour), more varied activities instead decreased happiness. Importantly, merely perceiving a given duration of time (e.g., an hour) as shorter versus longer generated the same effects.

The studies also provided insight into the underlying processes. Whereas variety over longer time periods made that time feel more stimulating, variety over shorter time periods made that time feel less productive. Because stimulation and productivity are both integral to happiness (Hsee et al. 2010; Reis et al. 2000; Seligman 2011; Sheldon et al. 1996), this explained why a greater variety of activities increased happiness over longer time periods, but decreased

happiness over shorter ones (studies 3, 5 and 6). Furthermore, for a shorter time period in which consumers were explicitly not motivated to be productive, the detrimental effect of variety on happiness was attenuated (study 4).

In addition to natural (studies 1a-4) and manipulated (studies 5 and 6) differences in perceived time, the effects were robust across actual (studies 1a, 1b, 5, and 6) and perceived variety (studies 2-4). Furthermore, the different methodologies employed by the studies cast doubt on potential alternative explanations due to activity number (studies 3 and 6), ease of recall (studies 5, and 6), or qualitative differences between the particular activities filling participants' time (studies 2-6).

Generalizability and Boundary Conditions

The studies showed that variety's effects on subsequent happiness generalize across multiple types of activities. We found the same pattern of results irrespective of whether the activities were self-selected (studies 1a-5) or imposed (study 6), and whether they were purely work (study 5), purely leisure (study 4), or a mix of work and leisure (studies 1a-3). Thus, beyond the specific types of activities that consumers integrate into their lives, the variety among those activities plays an important role in shaping consumers' happiness.

Furthermore, although prior research suggests that shared activities produce greater happiness than solo activities (Caprariello and Reis 2013), an additional study reported in the web appendix (supplementary study 2) showed that the variety among these two types of activities exhibits the same effects. That is, regardless of whether the activities were shared or done alone, perceiving greater variety among the past day's activities increased subsequent happiness, but perceiving greater variety among the past 30 minutes' activities decreased subsequent happiness.

In addition to highlighting the generalizability of the effects, the studies also identified an important boundary condition. When people wanted to spend time simply being entertained (and not productive), perceiving greater variety among their past hour's activities no longer proved detrimental to their happiness (study 4). This suggests that a greater variety of activities over shorter time periods only makes people less happy when feeling productive is an objective.

Theoretical Contributions

This research makes several theoretical contributions to the variety and happiness literatures. First, this work furthers understanding of the relationship between variety and happiness. Existing consumer research has primarily focused on how the variety within a single hedonic consumption experience influences its enjoyment (Galak et al. 2009; Nelson and Meyvis 2008; Ratner et al. 1999; Redden 2008). For instance, in a prior study, participants were tasked with tasting a series of 22 jellybeans that differed in flavor and to report their enjoyment of individual jellybeans, their overall enjoyment of tasting the jellybeans, and their desire to eat more jellybeans (Redden 2008). Thus the unit of analysis in that study was enjoyment of the individual jellybeans within the tasting task. Building on this prior work, the unit of analysis in our studies is the happiness consumers feel more generally having spent time on multiple "tasks" constituting more or less variety. For example, in our study 6, participants completed multiple candy-related tasks that were more or less varied and then reported how happy and satisfied they felt. Although both studies involve candy, the tasks in our study (e.g., evaluating, naming, and organizing the candies) were more complex than repeatedly tasting a single type of candy. Because complexity provides stimulation (Berlyne 1970), for these more involved activities, more time may need to elapse for subsequent happiness to be improved by the additional stimulation that greater variety affords. The difference in unit of analysis may explain why our

studies show variety to have a positive effect only over longer time periods, whereas prior work found variety to increase item enjoyment even in lab sessions of similar duration to our shorter time period conditions (e.g., Galak et al. 2009; Nelson and Meyvis 2008; Redden 2008).

Furthermore, most of our studies look more broadly at the activities that comprise consumers' daily lives, including eating lunch, working out, doing yardwork, watching TV, and taking care of the kids – not all of which are individually enjoyable. Although happiness scholars have speculated that filling time with more varied activities may make people happier (Lyubomirsky et al. 2005; Sheldon et al. 2012), this suggestion has not been empirically tested. The current research tests and extends the prior theorizing by examining whether variety does indeed increase subsequent happiness, as well as when and why this occurs.

This research also furthers understanding of the costs and benefits of variety in consumers' lives. Although much prior research highlights the benefits of variety (e.g., Berlyne 1960, 1970; Hoch et al. 1999; Kahn and Wansink 2004; McAlister and Pessemier 1982; Pronin and Jacobs 2008; Read and Lowenstein 1995; Redden 2008), there has also been work noting the negative consequences of too much variety (e.g., Berlyne 1960; Iyengar and Lepper 2000). Recent research has gone so far as to demonstrate the unique benefits that *less* variety can offer (Berger, Draganska, and Simonson 2007; Etkin and Ratner 2012, 2013; Etkin and Sela 2016). Our investigation identifies a novel way that less (rather than more) variety can be beneficial – by making shorter time periods (e.g., an hour) feel more productive. Our findings contribute to this growing literature by showing that variety not only affects product evaluations (Etkin and Sela 2016), brand evaluations (Berger et al. 2007), choosers' satisfaction (Mogilner et al. 2008), and consumers' motivation to pursue their goals (Etkin and Ratner 2012, 2013), but it also has consequences for personal happiness.

Our findings also underscore the role of perceived time in consumers' variety preferences. Several articles have suggested that time and variety preferences are linked. For instance, Etkin and Ratner (2013) found that people prefer more varied means when planning goal pursuit for the near future, but less varied means when planning goal pursuit for the far future; Read and Loewenstein (1995) and Simonson (1990) found that people choose more varied items when making their choices all at once than when making separate choices over time; and Galak et al. (2011) found that consumers' tendency to overestimate their desire for variety is particularly pronounced when consumption is spread out over time. Adding to these prior findings, the current research shows that more than the objective duration of a time period, the perceived time within which activities occur plays a critical role in how happy consumers feel after engaging in more or less varied activities.

The theoretical contributions of this work extend outside of the variety and happiness literatures, offering new insights into how consumers' goals shift across time. Our theory rests on the assertion that consumers are particularly concerned with feeling productive and getting things done over shorter time periods, but become more concerned with staying stimulated and not getting bored over longer time periods. The results of our pilot study (reported in the web appendix) confirmed this, and the results of the State Fair Study (study 4) showed how the goal to be productive during one's time (even at a place as fun as the Fair) determines variety's effect on happiness. Thus a shift in goals from being productive to being stimulated may not just have consequences for consumers' behavioral intentions, but also for their emotional experience of their day-to-day lives, and their satisfaction with their lives more generally.

Implications and Directions for Future Research

Marketers can glean insights from our findings to improve their messaging. For instance, rather than simply selling variety for variety's sake, communications could be made more effective by matching the promised level of variety with the life span of the product or service. If products will be used over longer time periods (or are positioned that way), marketers should highlight the varied usages or usage situations. However, for products that will be consumed more quickly, marketers might instead convey a more focused range of usages. Relatedly, emphasizing the variety among experiences that span longer time periods (e.g., a week-long vacation), but downplaying the variety among experiences that span shorter time periods (e.g., a half-day trip) may make consumers happier looking back on those experiences.

This research also has clear and practical implications for improving consumer well-being. Consumers intuit that filling time with more varied activities (irrespective of time period) is a sure route to achieve happiness. Indeed, when we asked 128 U.S. adults (36.7% female, 63.3% male; ages 18-67, mean age = 29.63, SD = 8.85) to list activities that will fill their upcoming hour or day, those who listed more varied activities predicted being happier than those who listed less varied activities ($F(1, 124) = 8.11$, $p < .01$)—regardless of whether they were planning their next hour *or* day ($F < 1$). The current research highlights the need for a more nuanced course of action. Scheduling more varied activities into one's days, weeks, and months, but removing variety from one's hours and minutes is a feasible way to boost happiness. By informing consumers how they should spend their time, our findings offer a simple way to make that time feel more stimulating, more productive, and ultimately happier.

Building on this recommendation, and in line with prior research (Broniarczyk et al. 1998; Etkin and Ratner 2012; 2013; Etkin and Sela 2016; Galak et al. 2009; Hoch et al. 1999; Kahn and Wansink 2004; Mogilner et al. 2008; Redden 2008), these findings highlight that it is

perceived (rather than actual) variety that really matters. Even if consumers cannot feasibly change how they spend a given period of time (i.e., if the actual variety among their activities is not flexible), simply focusing on the features that amplify or minimize the variety among their activities should be sufficient to obtain the resulting boost in happiness. Relatedly, consumers may be able to strategically increase or decrease the variety they *perceive* among their activities. Prior research showed that individuals perceive more variety within an assortment when it is partitioned into a greater number of categories (Mogilner et al., 2008; Redden, 2008). Combining these findings with ours suggests that how consumers categorize their activities may affect the happiness they enjoy from them. Whereas dividing activities into a greater number of categories may help spark interest, bucketing the same activities into fewer categories may help consumers feel productive, and thus happier.

The implications of our findings extend beyond consumer well-being to also inform employee well-being. Specifically, this research provides guidance for how workers' time might be scheduled to balance dual interests in productivity and happiness (Staats and Gino 2012). Organizational researchers have found that switching between a variety of tasks often reduces worker productivity (Staats and Gino 2012). Although repetition can make workers more productive, the lack of stimulation will eventually detract from their happiness. Our studies suggest scheduling as a means through which employers can align concerns of productivity, stimulation, and happiness in the workplace. Within an hour, tasks could be kept consistent to increase productivity, but across days, tasks could be varied in order to maintain stimulation. In addition to fostering motivation, this combination should promote employee happiness and satisfaction.

Future research should look to identify optimal levels of variety among the activities that consumers share with their relationship partners (e.g., Etkin 2016). People are often exhorted to incorporate more variety into activities shared with their romantic partner in order to enjoy a more satisfying relationship (Aron et al. 2000; Bao and Lyubomirsky 2013). Future work should build on the present findings to explore when relationship well-being will benefit from greater variety, and when relationships might instead benefit from the greater stability found in routine.

An exploration into individual differences is yet another intriguing direction for future research. Although these studies showed that our results apply to individuals both high and low in need for stimulation (see web appendix), age is a factor that may influence the happiness individuals derive from variety. Mogilner and colleagues (2011, 2012) found that younger consumers tend to derive greater happiness from excitement, whereas older consumers tend to derive greater happiness from feeling calm. Given that variety is also associated with excitement (Berlyne 1970; Galak et al. 2011; Ratner et al. 1999; Rolls et al. 1981), age may play a role in whether spending time on more varied activities generates happiness. The current studies provide some support for this idea. In study 3, for instance, in addition to the focal interaction between time period and variety, there was also a marginal interaction between age and variety (β = -.03; $t(536) = -1.76$, $p = .08$). A closer examination revealed that among older people, happiness decreased with more variety (β = -.91; $t(536) = -3.54$, $p < .001$). Notably, none of the studies showed age to moderate the focal interaction effect, but the interplay between age, variety, and happiness merits further investigation. An exploration into how cultures that value high versus low arousal positive affect reactions to varied activities (e.g., Tsai, Knutson, and Fung 2006) would be another interesting direction for future investigation.

Conclusion

Does variety increase happiness? Results of seven studies provide an answer: sometimes, but not always. Whereas spending time on more varied activities increases happiness over longer time periods by making that time feel more stimulating, greater variety decreases happiness over shorter time periods by making that time feel less productive. Together the findings empirically confirm that "variety is the spice of life" – but not of an hour.

APPENDIX A

Examples of activities listed in each condition by participants in study 2.

	High Variety	Low Variety
10 min.	"ate a sandwich" and "browsed Reddit"	"ate a meal" and "washed dishes"
30 min.	"worked from home" and "took a shower"	"ran" and "aerobics"
Hour	"worked" and "played video games"	"drove to work" and "drove to the bank"
Day	"worked" and "took care of my kids"	"went to the grocery store" and "went shopping for shoes"
Week	"went to a poetry slam" and "babysat"	"swim workout" and "cycle workout"
Month	"went to the bar with friends" and "watched movies by myself"	"watched movies at home" and "watched movies at the theater"

APPENDIX B

Examples of activities listed in each condition by participants in study 3.

	High Variety	Low Variety
30 min.	"took a survey" and "pulled weeds in the yard"	"went on Twitter to read tweets" and "went on Facebook to read status updates"
Hour	"swept the floor" and "showered"	"wrote a paper" and "read the paper"
Day	"went fishing" and "played football"	"cooked breakfast" and "cooked dinner"

FIGURE 1

STUDY 2: HAPPINESS FROM VARIETY OVER DIFFERENT TIME PERIODS

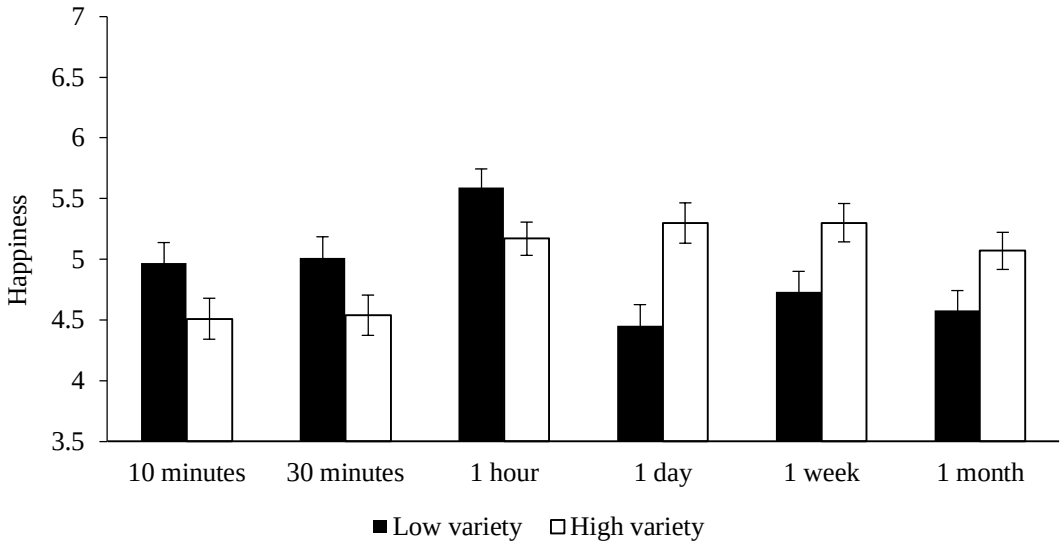


FIGURE 2A

STUDY 3: HAPPINESS FROM VARIETY OVER 30 MINUTES, AN HOUR, AND A DAY

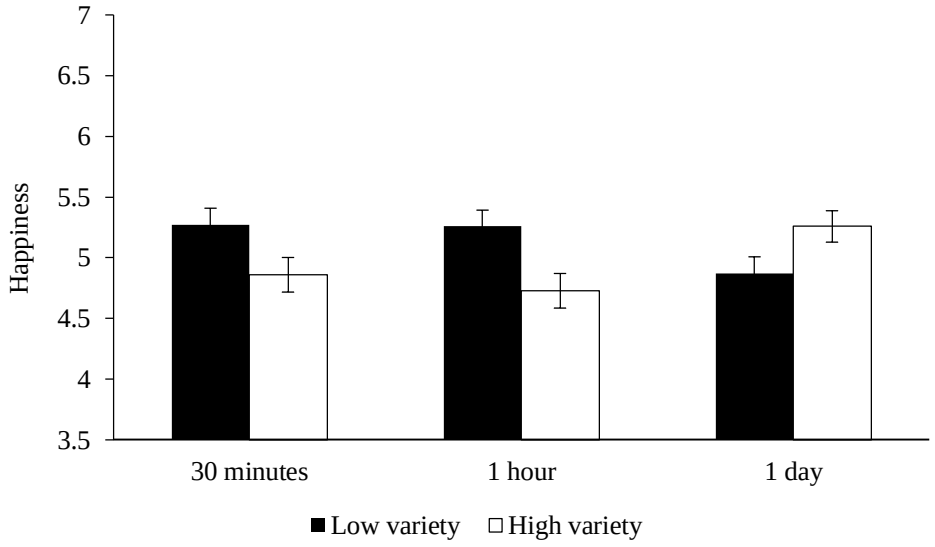
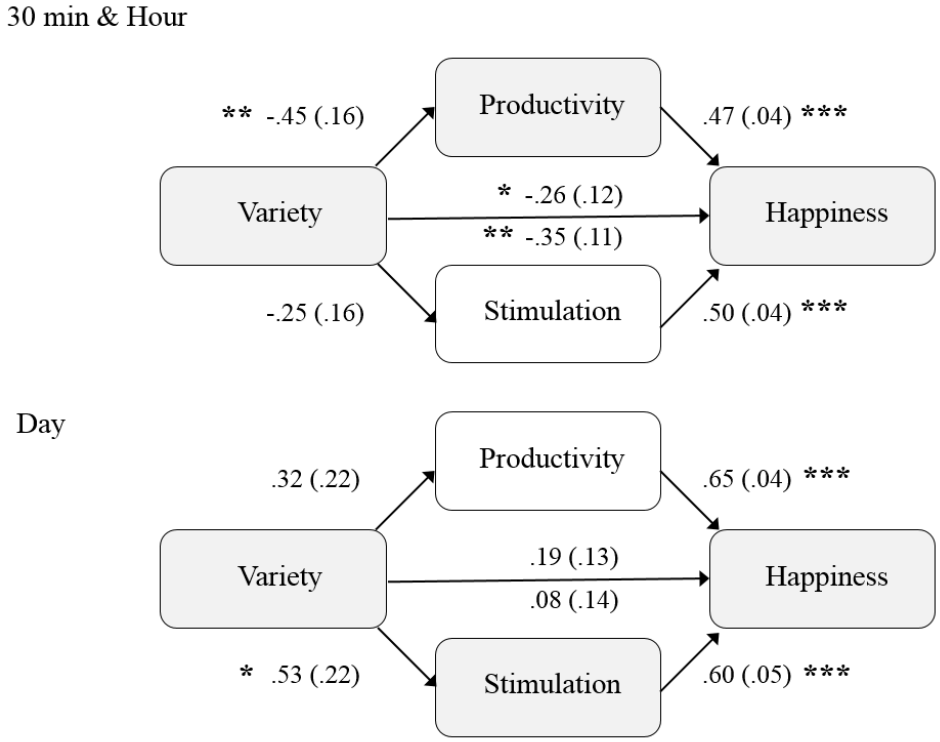


FIGURE 2B

STUDY 3: MODERATED MEDIATION ANALYSIS



Note –The effect of variety on happiness over shorter time periods is driven by productivity, and the effect of variety on happiness over longer time periods is driven by stimulation.

FIGURE 3

STUDY 4: HAPPINESS FROM VARIETY OVER A PRODUCTIVE VERSUS ENTERTAINING HOUR

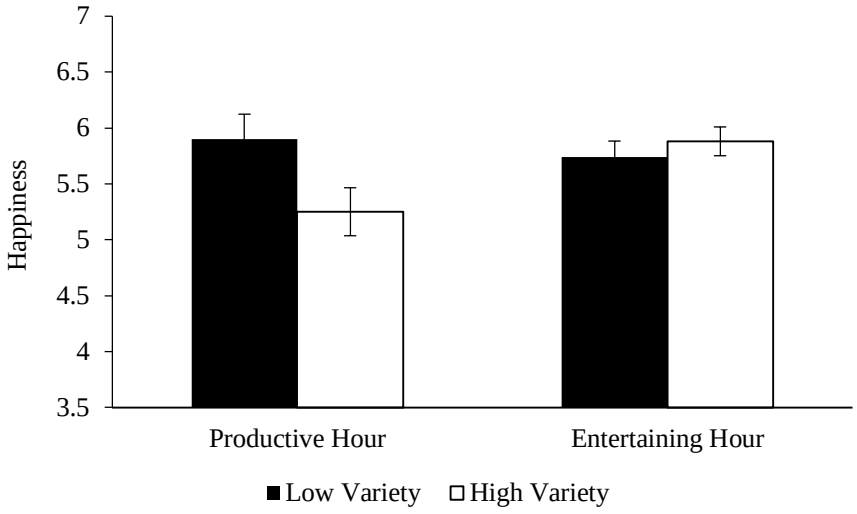


FIGURE 4

STUDY 5: HAPPINESS FROM VARIETY OVER A SHORTER VERSUS LONGER HOUR

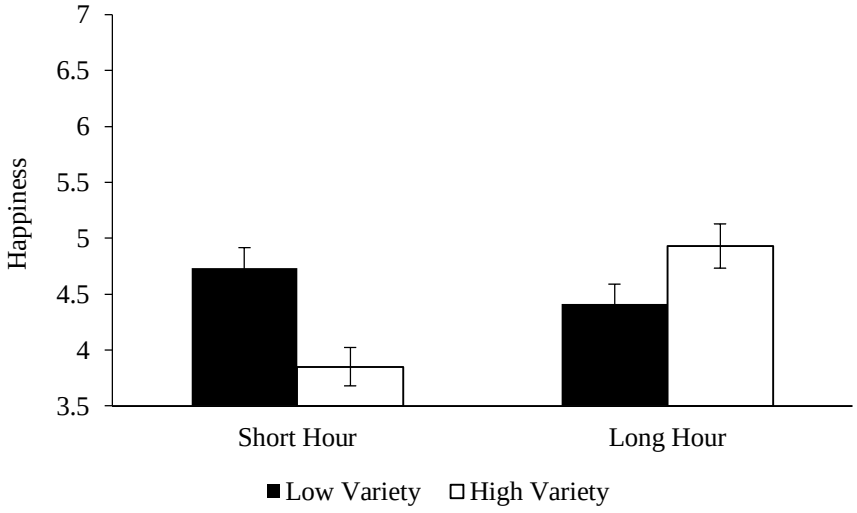
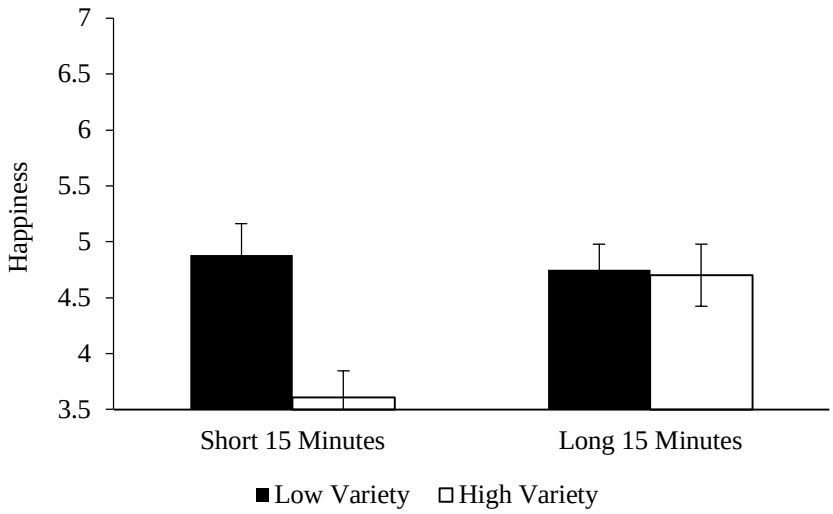


FIGURE 5

STUDY 6: HAPPINESS FROM VARIETY OVER A SHORTER VERSUS LONGER 15 MINUTES



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