Changes in emotions and their interactions with personality in a vacation context

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Highlights

- Addresses specific emotions rather than generalized dimensions of emotion.
- Accounts for the variability of emotions felt throughout a vacation.
- Documenting the role of personality in emotional outcomes of vacationing.
- Emotions high in both positivity and arousal exhibited an inverted U-shape curve during vacation.
- Personality determined the baseline levels of fear and sadness and moderated change in disgust.

Abstract

The purpose of this study was to examine changes in specific positive and negative emotions during a vacation, as well as their interactions with personality. Using a questionnaire and diary, 39 American and Dutch vacationers' emotions high in both positivity and arousal exhibited an inverted U-shape curve, suggesting that they felt better during the second section rather than the end of their vacation. None of the negative emotions exhibited significant changes over time. When the impacts of personality on specific emotions were addressed, personality was found to determine the baseline levels of fear and sadness and moderate change in disgust across individuals' vacations. The results suggest that tourism managers and researchers must acknowledge and address the change of emotions tourists experience during a vacation and the role of personality in influencing that change.

1. Introduction

Tourism researchers have traditionally assessed the utilitarian attributes of tourism products and services (Gursoy, Spangenberg, & Rutherford, 2006) despite the fact that tourism experiences include a strong affective (i.e., emotional) component (Coghlan & Pearce, 2010; Duman & Mattila, 2005; Gnoth, 1997). Certain tourists are pushed by their emotional desire to travel, others expect to "have a great time" when traveling, and the remaining few are pulled by the perceived emotional benefits of visiting a destination (Goossens, 2000; Mitas, Yarnal, Adams, & Ram, 2012a). In addition, individuals' positive or negative emotions have been found to vary throughout the tourism experience (Nawijn, 2011) and be related to level of satisfaction (Bigné & Andreu, 2004). Missing from existing tourism research is a focus on the specific emotions (e.g., joy, interest, disgust, sadness) felt by tourists.

Emotions generally have been conceptualized as positive or negative affect (Fredrickson & Losada, 2005; Gilbert & Abdullah, 2004; Nawijn, 2011; Phillips & Baumgartner, 2002; Yik & Russell, 2001). This generalized approach is problematic as emotions have different sets of appraisals; the important distinctions between specific emotions such as joy, interest, contentment, and awe disappear; and specific emotions are known to lead to distinct outcomes (Fredrickson, 2000; Lerner & Keltner, 2000; Roseman, Antoniou, & Jose, 1996).

Nearly all of the previous emotion research in a tourism context has captured tourists' emotions at one moment in time, which ignores the variability of emotions during the tourism experience. Being able to identify tourists' emotions at a given time as well as being able to measure evolving stages of emotions throughout the course of an experience are very important in the study of tourists' experiences (Coghlan & Pearce, 2010; Dube & Morgan, 1998).
Because different emotions can have different behavioral and cognitive consequences, it is also important to differentiate between specific emotions when predicting people’s behaviors (Laros & Steenkamp, 2005; Shaver, Judith, Donald, & Cary, 1987). For example, when a flight is cancelled both angry and sad tourists may feel that they were mistreated in some way. However, the sad tourists may become inactive and withdrawn while the angry tourists may fight with or demand action from the airline. Hence, it is necessary to take into account differences across emotions of the same valence (Lerner & Keltner, 2000; Zeelenberg & Pieters, 1999).

Not only is it important to recognize the specificity, variability, and different consequences of tourists’ emotions, researchers should also account for the influence of personality (Gutiérrez, Jiménez, Hernández, & Puente, 2005; Sheldon & Lyubomirsky, 2004; Yik & Russell, 2001). Personality, often defined as the enduring patterns of thought, feeling and behavior, has been studied predominantly from a trait theory framework in leisure and tourism contexts (Kleiber, Walker, & Mannell, 2011). Five traits—openness, conscientiousness, extraversion, agreeableness, and neuroticism—have been linked to destination preferences as well as travel group composition (Frew & Shaw, 1999; McCrae & Costa, 1997; Nickerson & Ellis, 1991). A big-picture view of emotion research reveals personality to be one of the strongest predictors of relative levels of positive and negative emotions in individuals over the long term (Lyubomirsky, Sheldon, & Schkade, 2005).

The purpose of this study was to examine changes in specific positive and negative emotions during one type of tourism experience, a vacation, and their interactions with personality. By studying change of specific emotions over the course of a vacation and the impact of personality on change patterns, our study adds to the current literature on tourists’ emotions by (a) addressing specific emotions rather than generalized dimensions of emotion, (b) accounting for the variability of emotions felt throughout a vacation, and (c) documenting the role of personality in emotional outcomes of vacationing. Our study also represents a departure from previous research on tourists’ emotions, which have used a cross-sectional approach (e.g., Andereck & Nyaupane, 2011; Bigné & Andreu, 2004).

2. Literature review

Emotions are short-lived, subjective feelings that occur in the foreground of consciousness, demand immediate attention, and motivate behavior (Frijda, 2007). From a practical standpoint, emotions could be defined as a complex set of interactions among subjective and objective factors, mediated by neural systems, which can give rise to affective experiences such as feelings of pleasure and arousal (Bigné & Andreu, 2004; Dube & Menon, 2000). It is important to differentiate between emotion, mood, and affect. Generally speaking, affect denotes a valenced feeling state and emotion and mood serve as specific examples of affective states (Cohen & Areni, 1991). Emotions, compared to moods, are more intense and associated with specific objects or events. Individuals are usually aware of their emotions, while their moods are more general and subtle, and often work beneath their consciousness (Goossens, 2000). Since emotions are direct, intense reactions to events that happen in an individual’s environment (Beedie, Terry, & Lane, 2005), emotions are most useful in understanding tourists’ experiences (Mitas et al., 2012a; Mitas, Yarnal, & Chick, 2012b).

2.1. Categorization of emotions

Researchers have categorized human emotions by emphasizing a limited number of specific, basic emotions (Zelenski & Larsen, 2000) or focusing on broad and general dimensions of human emotions (Russell, 1980). Building on the second approach to the categorization of emotions, Watson, Clark, and Tellegen (1988) proposed a positive—negative emotions dichotomy. They ascribed emotions such as joy, interest, and hope to positive emotions, and disgust, sadness, and embarrassment to negative emotions. Tourism researchers have used the positive—negative emotions dichotomy as it exemplifies the positive effects vacationing has on tourists’ emotions. Others have based their research on the dimensions of pleasure and arousal (Russell, 1980), which represent a rotation of the more common positive—negative emotions model. Specifically, pleasure reflects the degree to which the individual feels good with the surrounding environment, whereas arousal denotes the degree to which the person feels emotionally activated or stimulated (Bitner, 1992).

Regardless of which approach researchers use to study emotions, they must account for the fact that emotions of the same valence differ in their impacts on people’s perceptions and behaviors. Schifferstein and Desmet (2010) have argued that positive emotions of the same valence could yield different outcomes. The example they present is that someone who is fascinated is expected to focus on various product aspects, while someone who is joyful is more likely to be open and playful. Therefore, detailed insight on specific positive and negative emotions is essential to understanding tourists’ experiences.

2.2. Measuring emotions in tourism

According to Bigné and colleagues (Bigné & Andreu, 2004; Bigné, Andreu, & Gnoth, 2005), emotions are linked to customer satisfaction, customer loyalty and willingness to pay more. Gilbert and Abdullah (2004) and Sirgy, Kruger, Lee, and Yu (2011) addressed relationships between vacationing and domains of life satisfaction. They found that holiday taking groups experience less negative feelings and have a higher life satisfaction in general. However, other researchers have noted that emotional responses to vacations are not always positive. Vingerhoets, van Huijgenvoort, and van Heck (2002) found that tourists often complain about headaches, muscle pain, fatigue, and other negative feelings prior to and/or during the first few days of a vacation.

When measuring overall positive and negative emotions, tourism researchers have adopted one of two approaches. Mitas et al. (2012a) averaged the strength of specific positive/negative emotions to calculate total positive/negative emotions scores. Their approach assumed that every emotion carried the same weight. Peacock (1981) added up the frequencies of positive/negative experiences, which did not account for the specific emotions represented. Veenhoven (1984) proposed using an alternative approach—“Affect Balance.” With this approach the average negative emotions score is subtracted from the average positive emotions score. Nawijn (2010, 2011) used this approach when developing the “holiday happiness curve,” an inverted U-shape pattern in vacationers’ affect balance overtime during vacation. And, Nawijn, Mitas, Lin, and Kerstetter (2013) linked length of stay to the shape of the holiday happiness curve. Notably, none of these approaches account for how specific emotions change during a vacation.

The dynamic contributions of each specific emotion to an overall emotional dimension index remain unknown. We suggest that confusion concerning the structure of emotions has hampered the full interpretation and use of emotions in tourism research. Specific emotions could serve as an ideal proxy for interpreting the delicate and complex experience tourists go through during a vacation. Thus, we need to understand the dynamics of specific emotions before collapsing them into abstract dimensions. Schmitt (1999)
and Pine and Gilmore (1999) suggest that insight into an actual experience in-the-moment is essential to optimizing individuals' experiences.

2.3. Emotions and personality

It has been well established that emotions can be predicted from the immediate context. For example, a person typically feels joyful with good news, anxious before making an important decision, and relaxed while reading (Yik & Russell, 2001). However, less attention has been given to the notion that emotions can be predicted from one's personality traits (Diener, 1984; Larsen & Ketelaar, 1991). This is surprising given that emotional predispositions and affect are theoretically the result of a cluster of personality traits (Tellegen, 1985; Diener and Seligman (2002) and Gutierrez et al. (2005) have found that extraverted people are more likely to experience positive emotions, while neurotic people are more likely to present negative emotions.

In general, personality has been studied from two perspectives—as the enduring patterns of thought, feeling and behavior (i.e., structure and organization of personality), and as the individual differences and similarities between people. Trait theories of personality have driven much of the research on personality in leisure and tourism contexts. These theories are built upon the belief that "traits are emotional, motivational, cognitive, and behavioral tendencies that constitute underlying dimensions of personality on which individuals vary" (Kleiber et al., 2011, p. 186). While multiple traits have been identified and assigned various names, in recent years researchers have been successful in reducing them to five factors — openness, conscientiousness, extraversion, agreeableness, and neuroticism—otherwise known as the "Big 5" (Ehrhart et al., 2009; McCrae & John, 1992). These five factors have been linked to destination preferences, travel group composition, and level of involvement with cultures (Frew & Shaw, 1999; Madrigal, 1995; Nickerson & Ellis, 1991; Plog, 1974).

Ross (1994, p. 31) argued that there could be "no more appropriate or useful study than personality as it illuminates tourist behavior." A number of leisure and tourism researchers agree. For example, in 1994 Lawton generated a measure of personality using items drawn from past experience, Larsen and Diener's (1987) Affect Intensity Measure, and Herzog, Williams, and Weintraub's (1985) Reducer Index to assess whether personality might help predict leisure activity participation. Lawton found that activity participation was higher for individuals whose personality leaned towards an external processing style (i.e., affectively positive intensity, a sharpening of positive affect, and a preference for high levels of stimulation). Similarly, Melamed, Meir, and Samson (1995) demonstrated that leisure activity choices are an expression of individual's personality. Changing focus, Madrigal (1995) assessed the relationship between personality, personal values and travel style. Personality was evaluated using Plog's (1974) five-item allocentrism-psychocentrism scale. He found that personal values were a better predictor of travel style than personality. More recently, Gountas and Gountas (2007) identified a direct relationship between tourism consumers' personality orientation, emotional characteristics, and self-reported satisfaction with their experience. Personality proved to be an antecedent to tourists' emotional states and both personality and emotions were found to have an impact on consumers' evaluation of their experience and more. Also concerned with predictors of satisfaction, Faullant, Matzler, and Mooradian (2011) found that two basic emotions, fear and joy, are influenced by two of the Big 5 personality types, neuroticism and extraversion, respectively, and also correspond with cognitive appraisals that influence tourist satisfaction. Studying adventure tourists, Schneider and Vogt (2012) reported that interest in cultural experiences as well as individual's need for arousal and material resources were predictors of one's propensity for adventure travel. With all of these studies, the researchers adopted a cross-sectional approach that did not account for the change of emotions over time in a tourism setting. One exception exists. Mitas et al. (2012a) conducted a study linking emotion and personality with a convenience sample of 25 tourists. Unfortunately, their study had very limited statistical power to detect within-individual differences. Personality has not been linked to the temporal development of emotional outcomes during or after a tourism experience.

Thus, the overarching research questions guiding this study were: (1) Do specific emotions change over the course of a vacation? and (2) Does personality explain possible changes presented by specific emotions over the course of a vacation?

3. Methods

The sample was comprised of 20 Dutch and 20 American adults 45–65 years of age. We chose to recruit adults 45–65 years of age because they represent an older population that exhibits similar life course needs (Gibson & Viannakis, 2002), emotional responses to aging (Brown & Osborn, 2006; Stenger, 2009), and interest in traveling (Pearce & Lee, 2005). Mitas et al. (2012b, p. 1885) suggest, "how emotions play out in [older adults] experiences is unknown." In a travel context Foster (1986) and Sharpe (2005) have documented that positive emotions are present, but their ethnographic research does not speak to the diversity of positive emotions or the degree to which they are present throughout the travel experience. The American participants were recruited through an on-line listerv and snowball sampling whereas the Dutch participants were recruited through the Dutch Association of Travel Agents and Tour Operators. Only older adults vacationing for 5 days or longer in August or September 2010 were invited to participate in the study. The Dutch sample traveled to the southern parts of Europe and booked their trip through a travel agency. Destinations included the Greek islands, the Canary Islands, Portugal, Turkey and Cyprus. The American sample primarily traveled to destinations located along the East Coast of the United States (e.g., destinations in New York, New Jersey, North Carolina, and South Carolina). Two individuals opted to cruise through the Western Caribbean and one individual traveled with a tour group to Europe.

Participants were interviewed prior to their vacation (PREVAC), one week after their vacation, and four weeks after their vacation. During each interview they were presented with a questionnaire consisting of the modified Differential Emotions Scale (mDES; Cohn, Fredrickson, Brown, Mikels, & Conway, 2009). We used the mDES because the list of emotions is substantially broader and more inclusive than alternative measures (e.g., PANAS, Watson, Clark, & Tellegen, 1984), and is the only such list to cover a full range of positive and negative emotions (Cohn et al., 2009). In addition, the mDES has been designed and validated as an unusually thorough and precise instrument to measure specific emotions, reflecting the wealth of recent theoretical attention to positive emotions (Cohn et al., 2009). The PREVAC questionnaire also included the Satisfaction With Life Scale (SWLS; Pavot & Diener, 2008), the Ten-Item Personality Inventory (TIPI; Gosling, Rentfrow, & Swann, 2003) and questions about respondents' demographic characteristics. The data used in this study were drawn from the PREVAC questionnaire and from a diary completed during vacation. The data drawn from the PREVAC questionnaire included individuals' response to the TIPI and the demographic questions. With respect to the TIPI, study participants were instructed to indicate how strongly they agreed with 10 statements representing the "Big 5" personality traits (refer to McCrae & Costa, 1997 for more
that may have happened today.

A diary was provided to study participants at the end of their PREVAC interview. Daily diaries provide a rich source of information on the structured, time dependent, on-site experiences of tourists and are well tested within tourism research (Fennell, 1996). The diary consisted of the mDES and a follow-up open-ended question (i.e., “Please feel free to write about anything meaningful that may have happened today”). On the mDES, participants rated their strongest daily experiences of nine positive (joyful, grateful, amused, content, proud, awed, loving, hopeful, interested); eight negative (angry, sad, afraid, ashamed, contemptuous, embarrassed, guilty, disgusted); and two neutral (surprised, compassionate) emotions on a scale ranging from 1 to 5. According to Coghlan and Pearce (2010), using a diary method with multi-item scales of positive and negative emotions to assess emotional response is highly effective. Further, experiences associated with intense emotions have been found to correspond to high memory consolidation (Levine & Pizarro, 2004). Thus, study participants were asked to complete the diary each day of their vacation, which can be expected to result in valid and reliable data.

To assess potential changes in individuals’ emotions during their vacation, we created 20% sections for length of stay (from now on referred to as “sections”). For example, with a 10-day trip, days 1 and 2 fell in to the first section (i.e., the first 20%), days 3 and 4 fell in to the second section (higher than 20% but lower than 40%), and so on. Alternatively, with a 6-day trip, day 1 fell in to the first section (equal to 16.7% or within the first 20%), day 2 fell in to the second section (equal to 33.3% or higher than 20% but lower than 40%), day 3 fell in to the third section (equal to 50% or higher than 40% but lower than 60%), day 4 fell in to the fourth section (equal to 66.7% or higher than 60% but lower than 80%), and days 5 and 6 fell in to the fifth section (higher than 80% but lower than 100%). Nawijn (2010) used a similar approach with 10% sections for length of stay. In our study, the mode for length of stay was 7 and 41% of all respondents’ reported that their length of stay was shorter than 10 days. If we used 10% segments, based on the mutually exclusive rule, we would end up with sections without a single day in them. Thus, 20% segments were deemed more appropriate for our study. Repeated-measures analysis of variance (ANOVA) with a mixed design, as well as repeated-measures analysis of covariance (ANCOVA), were used to address the research questions. The sample size of this study (n = 40) is acceptable for repeated-measures ANOVA (Wilson Van Voorhis & Morgan, 2007). Repeated-measures ANOVA has been used successfully in a tourism context with sample sizes as small as 9 (e.g., Kim, Kim, & Bolls, 2011). While the use of repeated-measures ANCOVA is less common, our study design requires the use of covariates, and does not violate ANCOVA assumptions (Olejnik & Algina, 1984). We also used a conservative Greenhouse—Geisser correction to compensate for the violation of sphericity. The Greenhouse—Geisser correction is a more conservative correction to degrees of freedom, produces more accurate significance values, and prevents potential type 1 errors more than other sphericity corrections (Greenhouse & Geisser, 1959).

4. Results

We excluded one Dutch participant because of a failure to complete the diary on a daily basis, making the final sample size 39. Using repeated measures ANOVA, no significant main nationality effect was observed, F (2,95, 109.05) = 1.92. Thus, there was no significant difference in emotion scores between American participants and Dutch participants and we combined the two groups for the follow-up analyses. The mean age of the overall sample was 53.3 (SD = 5.4), most participants were female (n = 30) and the majority was employed either full-time (n = 25) or part-time (n = 7). Most participants were married (n = 27). In terms of their vacation, participants’ average length of stay was 10 days (SD = 3.27, mode = 7, range = 5–16 days). By multiplying the number of respondents and the length of stay of each respondent, we had a total of 401 data points. Detailed demographic and travel behavior characteristics of study respondents are presented in Table 1.

To address whether specific emotions change over the course of a vacation (Research Question 1), we ran a series of repeated-measures ANOVA tests. Table 2 lists the mean scores, standard deviations, and repeated-measures ANOVA results of emotion items across five time sections. Out of the nine positive emotions, five (amused, interested, joyful, loving, and proud) changed significantly over time during individuals’ vacations (see Fig. 1). The eta squared statistics were all above .07, indicating a medium to large effect size (Cohen, 1988). Post hoc analyses revealed that the mean scores of the five positive emotions at time Section 2 are significantly higher than those at time Section 5. All five emotions except for “interest” peaked at Section 2 of the vacation and bottomed at the last section of the vacation. This finding partially supports Nawijn’s (2010) happiness curve model, which argues that the middle section of the trip is a time when tourists feel relatively better compared to the beginning and the end of the trip. Furthermore, the findings clearly show that the end of the holiday (or the final section) is the least positive for study participants.

With respect to the remaining four positive emotions (awed, content, grateful, and hopeful), there were no significant differences across the five trip sections. None of the eight negative emotions changed significantly through time. For the two neutral emotions, surprise changed significantly over time, F (4, 152) = 2.90, p < .05, eta squared = .07, while compassion showed no significant change over time, F (3,18, 120.95) = 1.21, p = .31, eta squared = .03.

To answer our second research question (i.e., Does personality explain possible changes represented by specific emotions over the course of a vacation?), we added personality into a series of repeated measures ANCOVA models as a covariate. The within-subject interactions between disgust and the personality dimension of neuroticism were significant. The within-subject effect corresponds to the factor that influences the change pattern of the dependent variable (Misangyi, LePine, Algina, & Francis, 2006). In this case, the mean score of disgust for the participants with a

<table>
<thead>
<tr>
<th>Item</th>
<th>Response</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nationality</td>
<td>USA</td>
<td>20</td>
<td>51.3</td>
</tr>
<tr>
<td></td>
<td>Netherlands</td>
<td>19</td>
<td>48.7</td>
</tr>
<tr>
<td>Employment</td>
<td>Working full-time</td>
<td>25</td>
<td>69.4</td>
</tr>
<tr>
<td></td>
<td>Retired</td>
<td>1</td>
<td>2.8</td>
</tr>
<tr>
<td></td>
<td>Unemployed</td>
<td>3</td>
<td>8.3</td>
</tr>
<tr>
<td>Marital status</td>
<td>Living with partner</td>
<td>2</td>
<td>5.1</td>
</tr>
<tr>
<td></td>
<td>Divorced</td>
<td>3</td>
<td>7.7</td>
</tr>
<tr>
<td></td>
<td>Widowed</td>
<td>1</td>
<td>2.6</td>
</tr>
<tr>
<td></td>
<td>Single</td>
<td>5</td>
<td>12.8</td>
</tr>
<tr>
<td></td>
<td>Married</td>
<td>27</td>
<td>69.2</td>
</tr>
<tr>
<td></td>
<td>Separated</td>
<td>1</td>
<td>2.6</td>
</tr>
<tr>
<td>Gender</td>
<td>Female</td>
<td>30</td>
<td>76.9</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>9</td>
<td>23.1</td>
</tr>
<tr>
<td>Age</td>
<td>40s</td>
<td>9</td>
<td>26.5</td>
</tr>
<tr>
<td></td>
<td>50s</td>
<td>20</td>
<td>58.8</td>
</tr>
<tr>
<td></td>
<td>60s and above</td>
<td>5</td>
<td>14.7</td>
</tr>
<tr>
<td>Length of stay</td>
<td>Under one week</td>
<td>3</td>
<td>7.7</td>
</tr>
<tr>
<td></td>
<td>One week to 13 days</td>
<td>27</td>
<td>69.2</td>
</tr>
<tr>
<td></td>
<td>Two weeks and more</td>
<td>9</td>
<td>23.1</td>
</tr>
</tbody>
</table>
higher neuroticism score (or lower emotional stability) exhibited a significantly higher level of disgust during the middle section of the trip, compared to the groups with higher emotional stability (Fig. 2). No other significant within-subject interactions between personality and emotions were found.

Between-subject effects correspond to the factor that influences the baseline level of the dependent variable, regardless of time (Algina & Olejnik, 2003). We found two such effects for the personality dimension of extraversion (Fig. 3). In this case, extraversion had a significant between-subject effect for two emotions, sad and afraid. Participants who were neutral on extraversion reported significantly higher sadness levels (1.93) compared to participants who agreed moderately (1.18) and strongly (1.38) that they were extraverted. Similarly, participants who were neutral on extraversion reported significantly higher levels of being afraid (1.50) compared to those who strongly agreed that they are extraverted (1.14).

### 5. Discussion and conclusions

In this study, for the average participant, negative emotions did not exhibit significant change, whereas positive emotions fluctuated significantly during tourists’ vacation. Five positive emotions (amused, interested, joyful, loving, and proud) changed significantly over time during tourists’ vacations, while four of the five positive emotions peaked at Section 2 and bottomed at Section 5.

### Table 2

Mean scores, standard deviations, and repeated-measures ANOVA results of emotion items.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Section one</th>
<th>Section two</th>
<th>Section three</th>
<th>Section four</th>
<th>Section five</th>
<th>F-value</th>
<th>Eta squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content</td>
<td>3.73(1.07)</td>
<td>3.83(1.07)</td>
<td>3.76(1.01)</td>
<td>3.62(1.14)</td>
<td>3.52(1.25)</td>
<td>1.25</td>
<td>.03</td>
</tr>
<tr>
<td>Interested</td>
<td>3.81(1.88)</td>
<td>3.78(1.91)</td>
<td>3.73(1.79)</td>
<td>3.60(1.96)</td>
<td>3.41(1.88)</td>
<td>3.50</td>
<td>.08</td>
</tr>
<tr>
<td>Loving</td>
<td>3.59(1.88)</td>
<td>3.94(1.79)</td>
<td>3.65(1.87)</td>
<td>3.63(1.95)</td>
<td>3.47(1.92)</td>
<td>5.15</td>
<td>.12</td>
</tr>
<tr>
<td>Joyful</td>
<td>3.68(1.94)</td>
<td>3.87(1.82)</td>
<td>3.64(1.92)</td>
<td>3.60(1.92)</td>
<td>3.43(1.82)</td>
<td>2.87</td>
<td>.07</td>
</tr>
<tr>
<td>Grateful</td>
<td>3.53(1.23)</td>
<td>3.67(1.12)</td>
<td>3.65(1.19)</td>
<td>3.52(1.20)</td>
<td>3.67(1.18)</td>
<td>.54</td>
<td>.01</td>
</tr>
<tr>
<td>Amused</td>
<td>3.43(1.02)</td>
<td>3.68(1.82)</td>
<td>3.50(1.84)</td>
<td>3.57(1.83)</td>
<td>3.22(1.86)</td>
<td>3.83</td>
<td>.09</td>
</tr>
<tr>
<td>Proud</td>
<td>2.94(1.39)</td>
<td>2.24(1.14)</td>
<td>2.20(1.22)</td>
<td>2.97(1.12)</td>
<td>2.86(1.08)</td>
<td>2.90</td>
<td>.07</td>
</tr>
<tr>
<td>Hopeful</td>
<td>2.95(1.11)</td>
<td>2.82(1.10)</td>
<td>2.80(1.08)</td>
<td>2.82(1.16)</td>
<td>2.96(1.90)</td>
<td>.46</td>
<td>.01</td>
</tr>
<tr>
<td>Awed</td>
<td>2.74(1.37)</td>
<td>2.94(1.26)</td>
<td>2.88(1.32)</td>
<td>2.70(1.13)</td>
<td>1.68</td>
<td>.04</td>
<td></td>
</tr>
<tr>
<td>Average PA</td>
<td>3.38(77)</td>
<td>3.56(64)</td>
<td>3.43(68)</td>
<td>3.36(75)</td>
<td>3.25(70)</td>
<td>3.62</td>
<td>.09</td>
</tr>
<tr>
<td>Sad</td>
<td>1.46(81)</td>
<td>1.33(72)</td>
<td>1.40(82)</td>
<td>1.37(67)</td>
<td>1.70(87)</td>
<td>1.71</td>
<td>.04</td>
</tr>
<tr>
<td>Angry</td>
<td>1.47(98)</td>
<td>1.29(57)</td>
<td>1.44(85)</td>
<td>1.31(63)</td>
<td>1.38(66)</td>
<td>.68</td>
<td>.02</td>
</tr>
<tr>
<td>Disgusted</td>
<td>1.39(93)</td>
<td>1.37(82)</td>
<td>1.29(71)</td>
<td>1.32(86)</td>
<td>1.30(56)</td>
<td>.16</td>
<td>.00</td>
</tr>
<tr>
<td>Afraid</td>
<td>1.29(75)</td>
<td>1.22(61)</td>
<td>1.22(57)</td>
<td>1.15(41)</td>
<td>1.26(40)</td>
<td>.41</td>
<td>.01</td>
</tr>
<tr>
<td>Guilty</td>
<td>1.21(53)</td>
<td>1.25(57)</td>
<td>1.23(47)</td>
<td>1.13(30)</td>
<td>1.15(31)</td>
<td>.65</td>
<td>.02</td>
</tr>
<tr>
<td>Contemptuous</td>
<td>1.21(61)</td>
<td>1.21(58)</td>
<td>1.22(61)</td>
<td>1.10(41)</td>
<td>1.15(48)</td>
<td>.62</td>
<td>.02</td>
</tr>
<tr>
<td>Embarrassed</td>
<td>1.12(39)</td>
<td>1.17(43)</td>
<td>1.13(30)</td>
<td>1.16(47)</td>
<td>1.16(40)</td>
<td>.94</td>
<td>.03</td>
</tr>
<tr>
<td>Ashamed</td>
<td>1.10(35)</td>
<td>1.14(38)</td>
<td>1.21(62)</td>
<td>1.14(42)</td>
<td>1.14(41)</td>
<td>.43</td>
<td>.01</td>
</tr>
<tr>
<td>Average NA</td>
<td>1.28(47)</td>
<td>1.25(42)</td>
<td>1.27(47)</td>
<td>1.21(32)</td>
<td>1.28(30)</td>
<td>.33</td>
<td>.01</td>
</tr>
<tr>
<td>Surprised</td>
<td>3.03(1.19)</td>
<td>3.03(1.07)</td>
<td>3.14(1.14)</td>
<td>3.00(1.17)</td>
<td>2.60(1.04)</td>
<td>2.90</td>
<td>.07</td>
</tr>
<tr>
<td>Compassionate</td>
<td>2.71(1.35)</td>
<td>2.98(1.09)</td>
<td>2.81(1.27)</td>
<td>2.79(1.14)</td>
<td>2.79(1.97)</td>
<td>1.21</td>
<td>.03</td>
</tr>
</tbody>
</table>

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

- a Individuals were asked to “rate [their] strongest experience of each emotion” every day. They did this using a 5-point Likert scale that ranged from 1 “Very slight or none at all,” to 3 “Moderate,” to 5 “Extreme.”
- b Standard deviations are in the parentheses.
This change was represented by an inverted U-shape pattern, showing that the emotional benefits of a vacation are most salient during Section 2 of the trip, and that the end section of a trip is, for the average participant, the least positive. This finding partially supports Nawijn’s (2010) happiness curve theory, indicating that tourists feel relatively better in the middle of a trip than at the end. The other four positive emotions (awed, content, grateful, and hopeful) did not exhibit such change patterns. This result may be because amusement, interest, joy, love, and pride are higher in arousal when compared with awe, contentment, gratitude, and hope (Barrett & Russell, 1998; Watson et al., 1984; Zevon & Tellegen, 1982). Specifically, the results implied that emotions high in both positivity and arousal (amusement, interest, joy, love, and pride) exhibit a similar pattern (an inverted U-shape happiness curve) during vacation, while the emotions ranked high in positivity and low in arousal (awed, content, grateful, and hopeful) do not.

The mean negative emotion levels during vacation were low and similar to the levels reported in other studies (e.g., mean NA = 1.09 in Nawijn, 2011; mean NA = .90 in Wirtz, Kruger, Scollon, & Diener, 2003; mean NA = 1.50 in Zins, 2002). Furthermore, none of the negative emotions exhibited significant changes over time for the average participant, suggesting that the time course of a holiday does not have a universal significant impact on negative emotions. However, after adding personality into the model, the main effect of personality and the interaction between personality and time significantly predicted negative emotions exhibited significantly different change patterns of disgust. Specifically, participants with lower emotional stability exhibited a significantly higher level of disgust during the middle section of the trip, compared to the groups with higher emotional stability, which supports previous research by Gutiérrez et al. (2005). None of the positive emotions were moderated by personality, which suggests that the inverted U-shape happiness curve may hold across personality types. Overall, the fact that personality impacts the level of sadness and fear and moderates the change in disgust suggests it is necessary to take personality into account when analyzing the change of emotions during a vacation.

In sum, our findings uphold the central tenet of Nawijn’s (2010) holiday happiness curve, the pattern of positive emotions peaking during the middle portion of the holiday. Our results extend this model by distinguishing the relatively important role of high-arousal positive emotions in the happiness curve. Furthermore, we found that this curve holds across a variety of personality types, but that personality affects the potentially damaging experiences of negative emotions that sometimes arise during vacation.

6. Managerial implications

The tourism industry is facing increasing internal and external competition (Stevens, 2000). In order to survive and excel in this competitive environment, companies need to respond to tourists’ emotions. Some examples of how companies are beginning to do this follow. Travelocity has done this by appealing to tourists’ fear by guaranteeing their rates: “We’ll match the price and give you $50 toward future travel.” Mercure Hotels guarantees the best price and says, “If you find a better price elsewhere, we’ll match it — less 10%.” Our findings indicated that Travelocity’s and Mercure Hotel’s price guarantee strategies make sense. We found that introverted travelers had a significantly higher baseline level of fear compared to extraverted travelers. Guaranteeing prices prior to introverted travelers’ vacations may alleviate their level of fear. During and after their vacation, however, travel providers might consider employing price cues (e.g., placing signs at points of purchase, employing in-house advertising that showcases how they beat the competitors’ prices on similar products and services). Using price cues has been shown to influence consumers’ price perception (Busse, Simester, & Zettelmeyer, 2007), particularly if they exhibit positive emotions (Heussler, Huber, Meyer, Vollhardt, & Ahlert, 2009). Princess Cruises focuses on tourists’ need to escape by presenting them with the tagline, “Escape Completely,” and then helping them to understand how. Our study found that the mean negative emotion levels during vacation remained low and did not exhibit significant changes over time, which would allow tourists to enjoy an “escape.” Rather than repeating the traditional utilitarian marketing approach (e.g., price reduction, room upgrade), Princess Cruises tapped into tourists’ desire to escape negative emotions and pursue positive emotions. More travel providers need to follow suit and appeal to tourists’ emotions when developing/modifying services and crafting marketing messages.

One striking finding of this study was that the mean scores of five positive emotions (amused, interested, joyful, loving, and proud) were lowest in Section 5, even lower than at the start of the vacation. As many tourism providers are aware, the act of traveling is not customer-centered. The less-than-optimal emotional profiles we found at the beginning and end of the vacation may be due to the stresses of traveling such as packing light in order to minimize
baggage fees, waking up early to get to the train station on time, standing in line to check baggage, going through security checks, and the like. Lack of sensitivity to travelers’ personalities, leading in similarly boring or frustrating procedures for all, exacerbates the problem.

Thus, at the beginning of the vacation, when tourists’ positive emotions are not yet elevated, providers should try to minimize the worries and obligations associated with traveling to the destination. Well-designed services such as KLM’s self-service drop-off, which garnered substantial popular and social media buzz, or multiple airlines allowing tourists to check-in 24 h prior to departure are examples of strategies that may ease tourists’ stress. Towards the middle of the vacation, the ratio of positive emotions and negative emotions in this study reached its peak (2.8), which was slightly lower than the 2.9 threshold for flourishing (Fredrickson & Losada, 2005). Thus, tourism managers should consider adding extraordinary experiences to surpass the flourishing threshold. Examples of extraordinary experiences might include activities that challenge individuals’ skill level. On Trip Flip, a television series focused on providing individuals with extraordinary vacations, these activities include playing bagpipes in the hills surrounding a town in Scotland, paddling in an outrigger canoe with local residents, or going behind the scenes of a large theatrical production. Towards the end of the vacation, when tourists again present signs of lower levels of positive emotions, tourism managers need to once again put customers’ needs at the center of their services by offering easier and later check-out, dependable and comfortable airport transfers, perhaps even a bagged lunch to ease the hassle and cost of eating when traveling home. Furthermore, despite the importance of the emotions tourists feel during a vacation, tourism managers do not generally ask tourists about their emotions during the evaluation process (Barsky & Nash, 2002). Thus, managers could integrate emotion scales into their evaluation system together with satisfaction and other relevant measures, with the intention of predicting tourists’ willingness to return and/or making positive recommendations to others.

Managers and their marketing teams realize that today’s tourists seek multiple benefits from a vacation. They often do not realize that emotional benefits have become as important, if not more important, than the utilitarian benefits derived from a vacation. As a result, there needs to be much greater awareness of what emotional outcomes are experienced by tourists and when, which could be integrated into the tourism managers’ training program. Take the example of hoteliers and tour companies who, at the end of a vacation, offer tourists the opportunity to purchase a discounted trip for the next year. According to the results of this study, the best time to do this is the second time section of the trip, where tourists feel best. Previous research has linked the end of vacation to stresses about return travel, regrets that the holiday is ending, unwillingness about going back to work, and lower levels of positive emotions (Graburn, 2001; Mitas et al., 2012a; Nawijn, 2010). This is especially unfortunate, as many future booking decisions also form at this time.

As for the negative emotions, managers need to acknowledge that tourists with different personalities experience various levels of emotions at different times of the trip. Managers could identify the personality types of tourists by asking them a few questions when they book their travel. While it might be difficult to have individuals answer a series of questions off a questionnaire, there are general questions that providers could ask to give them a glimpse of an individual’s personality (e.g., type of excursions tourists are interested in). Service providers could also use proxies (e.g., web search history, personal website) to infer the personality of potential customers and market their services accordingly (Marcus, Machilek, & Schütz, 2006). The managerial response to an extraverted tourist should be different from that of an introverted tourist. Introverted tourists are more susceptible to stimuli that elicit sadness and fear during the trip, compared to extraverted tourists. Managerial response to an introverted tourist should be to minimize the stimuli (e.g., risky excursions) to provide the introverted tourist a more positive experience. At the same time, since the feeling of negative emotions is low but constant, tour leaders, front desk personnel, among others, need to prepare tourists when they check in for potential difficulties at the end of their vacation, particularly because tourists may be more likely to recall the end of the vacation instead of the peak (Fredrickson, 2000).

7. Limitations and recommendations for future research

There are several limitations to this study. Firstly, the sample size was too small (n = 39) to generalize to a larger population. A larger sample size drawn by probability sampling methods would be beneficial in detecting the impacts of other independent variables, such as age, gender, income, education, etc., on the change of emotions during vacation. It has been established that age, gender, trip destination, trip content, travel partner, specific activities, length of stay, and socioeconomic status have a significant relationship with tourism behaviors and thus are likely to influence emotions experienced during vacation (e.g., Collins & Tisdell, 2002; Fennell, 1996; Fischer & van Kleef, 2010). We focused on factors (stage of a vacation and personality) that pose a systematic impact on the affective states of travelers. We treated other factors such as trip destination, activity content, and travel partner, as random factors and did not address their impact on travelers’ affective states. Controlling for these moderators could reduce the noise variances caused by the covariates and help illuminate the change of emotions during vacations.

Second, the mDES Scale (Cohn et al., 2009) was used to capture people’s emotions during the course of a vacation. Although the mDES covers a full range of positive and negative emotions, it was not developed for a tourism context. Some emotion items on the scale do not directly apply to tourism and other salient emotion items during holidays may not be represented on the scale. Furthermore, filling out a diary at the end of each day might not accurately reflect travelers’ experiences “in the moment.” Hence, a refinement of the scale based on qualitative inquiry is warranted. Such qualitative inquiry could also address the limitations inherent in all self-report quantitative measures, such as dishonest or socially desirable responses. However, in debriefing interviews for a parallel study currently being conducted, our participants reported filling out questionnaires regularly, consistently, and without a sense of burden.

Third, the activation level of the emotions experienced during vacation was not assessed. Currently there is no consensus over the activation levels of the emotions covered by the mDES. However, the results of this study imply that positive emotions of high activation level tend to exhibit an inverted U-shape pattern while the positive emotions of low activation level tend to stay unchanged during vacation. In order to further validate this argument, other scales (e.g., Russell’s (1980) Circumplex Model) should be used to assess activation level of emotions during vacation.

Fourth, since the mode for length of stay was 7 and 41% of all respondents’ reported length of stay was shorter than 10 days, we used 20% rather than 10% segments (refer to Nawijn, 2010 for more information about the use of 10% segments). While we acknowledge that some information was lost, the holidays of the individuals researched were too short to use 10% sections. Future research could follow the daily growth and linear interaction models developed by Mitas et al. (2012a) and explore the specific daily changes of emotions in a travel context.
Last, this study did not address the conditions that elicit specific emotions as well as the behavioral consequences of these emotions, such as satisfaction, word-of-mouth, and intention to revisit. In order to understand the role of emotions in a tourism setting and establish the external validity of emotion scales, we need to focus on specific emotions and describe and explain the causes and outcomes that differentiate between them (Mitas et al., 2012a). Furthermore, this manuscript only focused on the change of emotions during travel. It would be promising to conduct a study on the comparison between everyday and travel emotion characteristics. As the results of this study reflect, tourism experiences include a strong affective component. Researchers who ignore the specificity and development of tourists' emotions neglect a golden opportunity for future research into the emotional outcomes of vacationing. These outcomes are important. Tourism managers who only address the utilitarian aspects of tourism products risk losing their connection to customers and market share. Thus, future research should integrate emotional outcomes into broader explanations of consequent tourist behavior, such as word-of-mouth, recommendation, and purchase. Then, recommendations about enhancing tourists' emotional experiences could directly predict business outcomes.

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