DO YOU SEE WHAT I SEE? A MULTI-METHOD EXAMINATION OF THE EMOTIONAL SINCERITY OF ENTREPRENEURS

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DO YOU SEE WHAT I SEE? A MULTI-METHOD EXAMINATION OF THE EMOTIONAL SINCERITY OF ENTREPRENEURS

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Abstract

In this study, we use affective computing technologies to evaluate the emotions entrepreneurs display and convey to others. Rather than assume that the emotional experience of entrepreneurship is consistent across individuals, we examine variation between entrepreneurs in such expression. Further, we uncover substantial variation in emotional expression within individuals as they reflect on different specific aspects of their venture and entrepreneurial experience. Using 37 videos of entrepreneurs telling their oral histories, sampled every 200 milliseconds, we uncover key differences between and within entrepreneurs across their stories. Further, we identify important affective triggers such as failure, motivation to start their venture, significant accomplishments, and future plans and goals.

Introduction

Scholars have compellingly argued that emotions entrepreneurs experience and display are a key component of their ability to gain funding (Baron, 2008; Jennings et al., 2012; Mitteness et al., 2012), motivate employees (Cardon, 2008; Brueggt et al., 2012; Brundin et al., 2008), devote time and effort toward their ventures (Murnieks et al., 2012; Foo et al., 2009; Cardon & Kirk, 2015), as well as their ability to be successful in such endeavors (Drnovsek et al., 2012). Yet, research in organizational behavior and psychology also demonstrates that individuals can actively manage and regulate their emotions, as well as their displays, in order to elicit reactions in social others (e.g., customers/investors) using emotion regulation techniques (Dasborough & Ashkanasy, 2002; Gross, 1998; Hochschild, 1983; Rafaeli & Sutton, 1987) and impression management (Hsee, 1996; 1998; Martens et al., 2007). Survey methodologies used to assess individual emotions are particularly problematic because individuals can manipulate their reported emotions either deliberately or unintentionally if they are unaware of their true emotional states (e.g., Robinson & Clore, 2002). Similarly, surveys used to assess entrepreneurs’ displayed emotion, such as passion, may be unreliable (e.g. Chen et al, 2009; Mitteness et al., 2012). Other available methodologies, such as analysis of speech patterns, facial expressions, or other biophysical markers of emotional experiences may be more reliable and accurate, as these are much more difficult to fake (e.g. Sideridis, et al., 2014).

In this paper we take the first steps toward examining entrepreneurs’ emotional expression and sincerity by utilizing modern affective computing technologies to evaluate the emotions entrepreneurs display and convey to others. In doing so we add to our understanding of both within-
individual and across-individual variation in emotional experience and expression. Scholars have long noted that the entrepreneurial journey is a bit of a roller-coaster ride, likely including extremely intense positive emotional experiences along with devastatingly negative ones (Schindehutte, Morris, & Allen, 2006; Smilor, 1997). Empirical examination of such highs and lows, however, is scant. We also have little understanding of the extent to which emotional experiences are shared by entrepreneurs. In a recent review on entrepreneurial decision making, Shepherd, Williams and Patzelt (2015: p. 33) suggested that “entrepreneurs are heterogeneous in their emotional reactions, and these differences have an impact on entrepreneurial decision making.” Although we know that individuals have different levels of affective reactivity (Baumgartner, et al., 1987; Cacioppo & Petty, 1982; Gohm & Clore, 2000) and therefore can experience different emotions in response to the same stimuli, we do not know the extent of such variation among entrepreneurs. For example, while some scholars argue that entrepreneurs must be passionate to be successful (Cardon et al., 2009), and are likely to experience extreme grief when faced with loss of their venture (Shepherd, 2003), these scholars also recognize that there is likely to be considerable variation in the existence and extent to which entrepreneurs feel such emotions (Shepherd & Cardon, 2009). We seek to better understand such variation, both within and between entrepreneurs, and specifically seek to answer three research questions:

1. What does the emotional roller-coaster of entrepreneurs look like as they talk about their ventures and path to starting/growing the ventures?
2. Do emotional expressions vary substantially within a person depending on the specific object or affective event they are talking about? If so, how?
3. How do emotional expressions vary across entrepreneurs for the same topic?

**Hypothesis Development**

Emotions are an important part of entrepreneurship (Baron, 2008). Emotions (e.g. joy/happiness, hope, fear, anger, positive and negative affect) have been found to influence a variety of entrepreneurial decisions and actions including investment diversification, risk perception and preferences, opportunity evaluation and exploitation, and innovation and creative solutions to problems (Chan & Park, 2013; Foo, 2011; Grichnik, Smeja, & Welpe, 2010; Jennings, Edwards, Jennings, & Delbridge, 2015; Welpe, Sporre, Grichnik, Michl, & Audretsch, 2012). Entrepreneurial emotion is defined as “the affect, emotions, moods, and/or feelings – of individuals or a collective – that are antecedent to, concurrent with, and/or a consequence of the entrepreneurial process, meaning the recognition/creation, evaluation, reformulation, and/or the exploitation of a possible opportunity” (Cardon, Foo, Shepherd, & Wiklund, 2012: p. 3). Such emotions can be discrete in nature, focused on particular combinations of valence and intensity, such as the negative emotion of grief over the failure of a venture (Shepherd, 2003), or the positive emotional trait of optimism for the venture's future (Hmieleski & Baron, 2009). Emotion research has also focused on more continuous emotional states, such as varying levels of valence (positivity and negativity of an emotion) and intensity (activation of the emotion) (e.g. Jennings et al., 2015; Lerner & Keltner, 2000; Podzynsinsya, Van der Bij, & Song, 2012). We examine both discrete emotions and generalized positive, negative, and neutral emotions in this study, and the level of activation of each.

Key distinctions have been made between emotions entrepreneurs feel and those they display to others. Research on emotional labor (e.g., Hochschild, 1983) indicates that some individuals fake their emotions in an attempt to elicit more favorable responses from customers and other stakeholders (Gabriel & Diefendorff, 2015; Grandey, 2003; Pugh, Groth, & Hennig-Thurau, 2011;
Scott, Barnes, & Wagner, 2012). For example, entrepreneurs are trained to give more professional business pitches by showing animated body movements, changing the pitch or tone of their voice, or using particularly active words in their presentations (Chen, Yao, & Kotha, 2009). As such, stakeholders may be leery of such artificially exuded emotions (Chen, et al., 2009; Mitteness, et al., 2012) and may not believe the entrepreneur truly feels the emotions they are displaying. Indeed, current literature differentiates between perceived emotions and real emotions, recognizing that the emotion a viewer perceives the entrepreneur to have may or may not be how the entrepreneur truly feels (e.g. Mitteness, et al., 2012).

This suggests that research methodologies attempting to assess perceived entrepreneur emotion based on verbal and non-verbal expression may be flawed, because perceptions can vary greatly based on characteristics of the person doing the perceiving (Mitteness, et al., 2012). Further, such studies on perceived emotions typically rely on global judgments about the overall level of an entrepreneur’s positive emotion, negative emotion, or more specific emotional content. This yields an overly simplistic evaluation of entrepreneurs’ emotional expression that is subjectively based on the perceiver’s own characteristics and perspective, and that does not allow for changing assessments of emotional expression over time.

In addition to these distinctions, research has typically looked at aggregate emotion for an individual, an overall evaluation of their emotional experience (e.g. PANAS, passion) or expression (e.g. Chen et al., 2009; Mitteness et al., 2012), whether through self-report or observer analysis. Yet, we know that emotions vary considerably during the entrepreneurial life cycle (e.g., Baron, 2008) and may also vary as entrepreneurs talk about various aspects of their venture experience. Recent work has highlighted variation within individuals over time, such as Foo, Uy, and Baron (2009) who examined the relationship between long- and short-term emotions and entrepreneurial effort using experience sampling methodology, and Gabriel and Diefendorff (2015) who used continuous rating methodology to examine variation in felt emotions, emotion regulation, and vocal tone during an interaction between an employee and customer. The Foo et al. study examined how felt emotions changed over time, while the Gabriel and Diefendorff article examined how felt and perceived emotions of employees changed over time.

In this study we examine both inter-individual differences in emotional expression to assess how entrepreneurs differ from one another in the valence and intensity of the emotions they experience, and intra-individual differences in emotional expression to assess how entrepreneurs’ emotions vary within themselves as they discuss different aspects of their entrepreneurial journey. Contrary to the assumptions seemingly made in extant literature, we anticipate substantial variation in both. Hence,

\[ H1: \text{Emotional expression will vary significantly between different entrepreneurs.} \]

\[ H2: \text{Emotional expression will vary significantly within entrepreneurs.} \]

**Methods**

We rely on newly emergent technologies to more objectively analyze entrepreneurs’ emotional displays and the potential within and between-person variation in such displays. Innovation in affective computing has resulted in software that analyzes individuals’ emotional expressions from either live cameras or video-taped feeds. Such analysis is important because some emotions cannot be faked, and computer analysis of emotions allows for systematic processing of hundreds
of facial movements that reveal the true emotional experience of the individual rather than their attempted or regulated display. For example, movement of one's mouth to make it upturned at the corners is considered a smile, but such movement in combination with specific movements of the upper cheeks near the eyes is considered a real smile, or Duchenne smile. To create a Duchenne smile, two different muscle systems are controlled by different parts of the brain and it is impossible to create such a smile unless the individual truly feels happiness (Ekman, Davidson, & Friesen, 1990). While human observers can be trained to detect different facial movements and their associated emotional content, such expressions change rapidly and involve hundreds of facial muscles, making computer-based detection and processing of facial action units much more precise and reliable than human observer coding.

Our sample includes 37 entrepreneurs who were videotaped telling the story of their venture. The videos were collected as part of a larger project to collect oral histories of entrepreneurs from throughout the United States. Over 500 videos have been collected and 37 were chosen randomly from among those that had only one founder. Videos ranged in length from 10 minutes to over two hours.

We analyzed these videos for their emotional content using the iMotions Attention Tool Biometric Research Platform. Within this platform we specifically utilized FACET, which is software that analyzes seven basic facial emotions (joy, anger, sadness, surprise, fear, contempt, disgust) as well as overall positive, negative, and neutral affect. FACET analyzes an individual's emotional expression by examining over 200 points on the face including mouth, eye, and other miniscule facial movements and the combination of such movements in order to assess the respondent's emotional expression. This particular software is based on extensive work on emotional expression done by Ekman (1992) and has been used in other studies related to spontaneous emotional expression (Bartlett, et al., 2006), advertising, health, and education (Peters, 2014), and the computer analysis of emotional expression has been used in studies of individual learning and performance (Sideridis, et al., 2012), responses to marketing materials (Lewinski, et al., 2014), and emotional reactivity (Chentsova-Dutton, et al., 2010). Figure 1 provides a sample analysis using FACET. Entrepreneurs’ emotional expressions were taken at samples every 200ms apart (Gabriel & Diefendorff, 2015). Emotion evidence scores of 1 (-1) indicated that the emotion was 10 times more (less) likely to be categorized by an expert human coder as present than not present; scores of 2 (-2) indicated that the emotion was 100 times more (less) likely to be categorized by a human coder as present than not present.

Results

For Hypotheses 1, in order to compare emotions expressed between entrepreneurs, we looked at the average emotion evidence scores across the entire video, as well as for particular events (e.g., the venture's history, future goals, accomplishments, failures and challenges, keys to success, passion). When considering our results in an aggregate manner, we found no emotion measure approached the threshold for concluding that a particular emotion was present. Our results did suggest that joy was not likely to be present during any phase of the interview. The joy evidence scores were -1.94 across the entire interview, -2.03 when entrepreneurs talked about their experience regarding the venture's history, -1.99 when talking about future goals, -1.89 when speaking about accomplishments, -1.99 when discussing failures and challenges, -2.13 when describing keys to success, and -1.91 when talking about passion. Further, the only emotion that
is measured at medium intensity or above is neutral emotion suggesting that, on average, the entrepreneurs in our sample were emotionally neutral when describing their experience.

For Hypothesis 2, we examined whether observed emotions varied within entrepreneurs. Basic descriptive results at every 200ms suggest that, although differences between entrepreneurs were quite small, differences within entrepreneurs were more substantial. For instance, when considering the range of emotional responding, evidence ratings of joy varied from -5.92 to 7.73; for anger, the range was from -5.37 to 1.95. These results suggest that, although average emotion ratings tended to be fairly neutral, within-person ratings fluctuated momentarily. Moreover, assessments of neutral emotional evidence ranged from -6.32 to 1.96. This variability was smaller in comparison to positive emotion evidence (-2.14 to 13.71) and negative emotion evidence (-3.99 to 15.57), providing further evidence that moment-to-moment changes in emotions occur. An illustrative example of this variability is in Figure 2 for a single entrepreneur. Fitting with the descriptive findings, neutral emotions stay fairly constant throughout, but larger variability with positive versus negative emotions occurred.

**DISCUSSION AND IMPLICATIONS**

The purpose of this study is to take the first steps toward examining entrepreneurs’ emotional expression and sincerity by utilizing modern affective computing technologies to evaluate emotions entrepreneurs display and convey to others. In doing so, our aim is to enhance researchers’ understanding of both within-individual and across-individual variation in emotional experience and expression. Understanding how emotionally sincere entrepreneurs are appears to be a key need in order to advance research on affect, self-regulation, and entrepreneurs’ social competence (Baron, 2007; Baron & Markman, 2003). Our preliminary results suggest that in an interview format, entrepreneurs show high levels of emotional variability on a moment-to-moment basis, with this effect being minimized when considering emotional responding in the aggregate. Future research should be conducted to assess variability within specific entrepreneurial events, which is part of the data analysis plan for the current study. Moreover, future research may also be undertaken to analyze entrepreneurs’ emotions through the use of a combination of computerized facial emotion analysis, content analysis, and observer analysis.

Metacognitive mechanisms and the ability to regulate one’s emotions facilitate entrepreneurs’ abilities to monitor, regulate, and enhance the behaviors that influence performance (Baron, 2007; Baron et al., 2011). Thus, entrepreneur self-awareness, as a necessary component of metacognition, plays an important role in the creation and development of new ventures. By using the methodology described above, we will be able to draw more accurate conclusions about entrepreneurs’ levels of self-awareness, which advances the research on metacognition and self-regulation of entrepreneurs. Future research may then allow researchers to assess the extent to which entrepreneurs manipulate their emotions through deliberate word choice as it contrasts from the analysis of their physiological facial responses, which has implications for social desirability bias in entrepreneurship research, as well as providing evidence of entrepreneurs’ tendencies toward impression management. More practically, results of this study will help us understand the emotion regulation strategies entrepreneurs utilize, which would enable us to tailor our training concerning emotion regulation techniques more specifically to their needs.

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Figure 1: Sample analysis in FACET

![Sample analysis in FACET](image)

Figure 2: Analysis of one entrepreneur in the sample

![Analysis of one entrepreneur in the sample](image)