EXPRESS YOURSELF: FACIAL EXPRESSION OF HAPPINESS, ANGER, FEAR, AND SADNESS IN FUNDING PITCHES

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Highlights

- Entrepreneurs express both positive and negative emotions in their funding pitches.
- We perform a qualitative analysis examining the objects of entrepreneurs' facial expressions and the nature of changes between facial expressions.
- We use facial expression analysis software to perform a quantitative analysis examining the influence of entrepreneurs' facial expressions of emotion on funding.
- The frequency of entrepreneurs' facial expression of happiness, anger, and fear exhibits an inverted U-shaped relationship with funding.
- The frequency of changes in entrepreneurs' facial expressions increases funding.

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ABSTRACT

We build upon theory from evolutionary psychology and emotional expression, including basic emotion theory and the dual threshold model of anger in organizations, to extend knowledge about the influence of facial expressions of emotion in entrepreneurial fundraising. First, we conduct a qualitative analysis to understand the objects of entrepreneurs' facial expressions of four basic emotions in their pitches: happiness, anger, fear, and sadness. This provides a base for our theorizing that the frequency of entrepreneurs' facial expression of each of these emotions exhibits an inverted U-shaped relationship with funding. We also argue that the frequency of changes in entrepreneurs' facial expressions is positively related to funding. We test our predictions with a sample of 489 funding pitches using computer-aided facial expression analysis. Results support inverted U-shaped relationships of the frequency of facial expression of happiness, anger, and fear with funding, but show a negative relationship of sadness with funding. Results further support that the frequency of changes in entrepreneurs' facial expressions promote funding.

Keywords: entrepreneurial funding pitch; emotion; emotional expression; facial expression; basic emotions; object of emotion; mixed methods; qualitative; happiness; anger; fear; sadness; passion

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Executive Summary

Entrepreneurs express emotion in many ways, but facial expressions are particularly influential (Bonanno et al., 2002; Keltner et al., 2019). This may be especially true in visual presentations, such as the funding pitch (Lee and Anderson, 2016). However, understanding of entrepreneurs' facial expressions of emotion in funding pitches remains limited in a few key ways. To begin, it is well documented that people display a variety of facial expressions in social interaction (Ekman, 1992; Rafaeli and Sutton, 1989; Russell et al., 2003), yet entrepreneurship scholars have focused on positive expressions in funding pitches, overlooking the potential benefits of emotions traditionally viewed as negative. In addition, people differ in how frequently they display facial expressions of a given emotion (Ekman, 1982) and change, sometimes quickly, from one facial expression to another (Ekman, 1982; Wehrle et al., 2000). However, entrepreneurship scholars have given little attention to such differences in emotional expression. This is important, since research suggests that negative effects become more likely when one expresses an emotion either more or less frequently than is acceptable in a given situation (e.g., Shields, 2005) and changes in expressions influence an audience's perceptions of, and response to, the expresser (e.g., Eastwood et al., 2001; Frischen et al., 2008). Accordingly, we ask: "How do entrepreneurs' facial expression of emotions in a funding pitch, both positive and negative, influence funding?"

Our study focuses on facial expressions of happiness, anger, fear, and sadness, since these are the four "basic" emotions that research has shown can be reliably captured and distinguished via facial analysis software (Jack et al., 2014). We first conduct a qualitative analysis of entrepreneurs' facial expressions of these emotions to examine if they are displayed in funding pitches, to understand the objects of each, and to provide insight into the nature of entrepreneurs' changes from one facial expression to another. With this enriched understanding, we proceed to theorize about the influence of entrepreneurs' facial expression of each emotion on funding by building upon research in evolutionary psychology and emotional expression, including basic emotion theory (Ekman, 1992,

1999; Keltner et al., 2019), theory surrounding change detection (Rensink, 2002), and the dual threshold model of anger in organizations (Geddes and Callister, 2007). The dual threshold model of anger in organizations suggests that the extent to which expression of an emotion results in either a positive or negative social outcome is influenced by how frequently it is expressed (Geddes and Callister, 2007; Geddes et al., 2020). We extend this model and propose that facial expression of each emotion plays a role in increasing funding, but expressing an emotion too infrequently or too frequently may violate display rules of appropriate expression, hindering funding. We thus expect that each emotion exhibits an inverted-U relationship with funding. Research further suggests that changes in facial expression increase observer attention (Eastwood et al., 2001; Frischen et al., 2008) and influence perceptions of an expression's authenticity (Cohn and Schmidt, 2003). Accordingly, we argue that the frequency of changes in entrepreneurs' facial expressions increases funding. We test our hypotheses using a sample of crowdfunding pitch videos. The results provide broad support for our hypotheses apart from sadness, which exhibited a negative relationship with funding.

We offer three main contributions. First, our qualitative analysis provides insight into the objects of entrepreneurs' expressions of happiness, anger, fear, and sadness in their funding pitches. Our quantitative analysis then complements this study and shows that frequently expressing a given emotion—including happiness—may prove counterproductive beyond a given point—a finding that runs counter to the long-held assumption that expressing positive emotions is universally beneficial. Second, we extend the dual threshold model's principles regarding frequency of expression to account for three emotions beyond anger, thereby opening a new line of research concerning the influence of emotion display rules in entrepreneurship. Finally, we suggest a potential boundary condition for emotional expressiveness in funding pitches. Whereas entrepreneurs benefit from emotional expressiveness in terms of frequent changes in their facial expressions, emotional expressiveness is detrimental if an entrepreneur expresses any single emotion too frequently.

1. Introduction

Entrepreneurs' emotional expressions play an important role in convincing potential funders to provide financial capital. To that end, research examining entrepreneurs' emotional expressions

has focused on how expressions of positive emotions, such as passion or enthusiasm, shape funding outcomes (e.g., Cardon et al., 2017; Davis et al., 2017; Jiang et al., 2019; Murnieks et al., 2016). For instance, recent work has found that resource providers—such as angel investors, crowdfunders, and informal investors—often respond more favorably to entrepreneurs who exhibit higher levels of passion (Li et al., 2017; Mitteness et al., 2012; Shane et al., 2020; Warnick et al., 2018). Such studies have laid the groundwork for understanding the importance of emotional expressions in entrepreneurial funding by showing that positive emotional expressions often facilitate favorable evaluations of entrepreneurs and their ventures.

Despite these developments surrounding the importance of emotional expressions in funding pitches, knowledge remains limited concerning a key mechanism by which emotions are expressed: facial expressions (Stroe et al., 2020). While emotions may be expressed in a number of ways, facial expressions have special salience (Bonanno et al., 2002; Keltner et al., 2019), particularly in visual presentations like funding pitches (Lee and Anderson, 2016). Knowledge about the influence of entrepreneurs' facial expressions in a funding pitch remains stunted in several ways. First, people display a variety of facial expressions in social interaction (Ekman, 1992; Rafaeli and Sutton, 1989; Russell et al., 2003), yet research on funding pitches has focused on expression of positive emotions, overlooking the potential benefits of expressing emotions traditionally viewed as negative. This is noteworthy considering that management and social psychology literatures have begun to acknowledge the persuasive benefits of expressing negative emotions, such as anger (e.g., Geddes and Callister, 2007; Geddes et al., 2020; Van Kleef et al., 2015). Second, people differ in how frequently they display facial expressions of a given emotion (Ekman, 1982), but entrepreneurship scholars have yet to examine differences in how frequently an emotion is expressed during a pitch. This omission is problematic because emotional expression research suggests that expressing an emotion either more or less frequently than is socially acceptable for a given situation can cause others to respond negatively (e.g., Shields, 2005). Finally, people change, sometimes quickly, from one facial expression to another (Ekman, 1982; Wehrle et al., 2000). Entrepreneurship research has yet to examine the influence of such changes, perhaps due to a tendency to focus on a single emotion

per study. To address these limitations and further understanding of the influence of entrepreneurs' facial expressions of emotion in funding pitches, we ask: "How do entrepreneurs' facial expression of emotions in a funding pitch, both positive and negative, influence funding?"

To answer these questions, we leverage computer-aided facial expression analysis to capture entrepreneurs' facial expressions in 489 funding pitch videos drawn from the Kickstarter crowdfunding platform. We ground our work in research from evolutionary psychology and emotional expression, including basic emotion theory (Ekman, 1992, 1999; Keltner et al., 2019), theory surrounding change detection (Rensink, 2002), and the dual threshold model of anger in organizations (Geddes and Callister, 2007; Geddes et al., 2020). Basic emotion theory explains that there are certain "basic" emotions which are distinct and serve as the fundamental basis of more complex emotions, and has emphasized the salience of facial expressions in influencing others (Bonanno et al., 2002; Keltner et al., 2019). Recent work applying basic emotion theory has employed facial analysis software to demonstrate that facial expressions can be reliably captured and distinguished as indicative of four basic emotions: happiness, anger, fear, and sadness (Jack et al., 2014). Accordingly, we focus on entrepreneurs' facial expressions of these emotions.

To lay the groundwork for our theorizing, we first conduct an exploratory qualitative analysis of entrepreneurs' facial expressions of basic emotions in their pitches. Here, we examine the words entrepreneurs say while expressing each emotion to provide insight into their objects and the nature of changes from one expression to another. Building upon our qualitative work, we then conduct a quantitative study by extending the dual threshold model of anger in organizations (Geddes and Callister, 2007; Geddes et al., 2020) to explain how the frequency of facial expressions of happiness, anger, fear, and sadness may shape funding outcomes. This model specifies that expressions of anger in organizations can lead to positive outcomes if they meet an expression threshold where one's expressions of anger are visible to others. However, highly frequent expressions of anger can exceed an impropriety threshold, rendering negative outcomes more likely (Geddes and Callister, 2007; Geddes et al., 2020). We theorize that each of these basic emotions exhibits a positive influence on funding provided it is not expressed so frequently that it exceeds an

impropriety threshold beyond which expression is more likely to be viewed as inappropriate, hindering funding. Accordingly, the frequency of facial expression of each emotion exhibits an inverted U-shaped relationship with funding.

We further incorporate theory surrounding change detection to explain that how frequently entrepreneurs change from one facial expression to another influences funding. This work argues that people automatically detect changes in others' facial expressions at a preattentive level (Ro et al., 2001). Changes in expression increase observer attention (Eastwood et al., 2001; Frischen et al., 2008). Moreover, the authenticity of emotions is revealed by changes in expressions over time, whereas a lack of such changes is indicative of inauthenticity (Cohn and Schmidt, 2003). As a result, we argue that frequency of changes in entrepreneurs' facial expressions increases funding.

We offer three main contributions. First, we study "the nuances of multiple emotions and their impact," as called for by entrepreneurship scholars (Cardon et al., 2012: 6). We offer both qualitative insight into entrepreneurs' expressions of four basic emotions in funding pitches and a theory-driven quantitative analysis concerning the influence of each expression on funding performance; we thereby build knowledge concerning often overlooked emotions (e.g., anger, sadness, fear). Contrary to the stereotype of the smiling, enthusiastic entrepreneur pitching their venture, we illustrate that frequently expressing a single emotion—including happiness—may prove counterproductive beyond a given point. Second, we extend the dual threshold model's principles regarding frequency of expression to account for three emotions beyond its focus on anger. We provide evidence that principles of the dual threshold model about "too much" or "too little" expression of a given emotion govern the influence of entrepreneurs' emotional expressions in funding pitches. In doing so, we answer calls to extend the scope of the dual threshold model of anger (Geddes and Callister, 2007; Geddes et al., 2020), resulting in a dual threshold model of emotional expression in funding pitches. Our contribution enhances the generalizability of the dual threshold model itself and opens a new line of research concerning display rules in entrepreneurship. Finally, by incorporating insights from basic emotion theory (e.g., Ekman, 1992; Keltner et al., 2019) and theory surrounding change detection (Ro et al., 2001), we explain why the frequency of changes in entrepreneurs' facial expressions of

emotion promotes funding. Our theorizing and findings suggest potential boundary conditions for emotional expressiveness in funding pitches, such that expressiveness is more likely to be beneficial if an entrepreneur expresses a variety of emotions.

2. Facial expressions of emotion and funding pitches

Emotions are discrete affective states that enable people to respond to evolutionarily significant threats and opportunities (Keltner et al., 2019). While it is well documented that emotions reflect internal experiences, they also correspond with brief patterns of behavior that serve to communicate the emotion to others (Keltner and Cordaro, 2017). These patterns are termed emotional expressions, or expressions of emotion, because they outwardly display an emotion to others (Ekman and Davidson, 1994; Matsumoto et al., 2008; Russell et al., 2003). Emotional expressions communicate information to others (Van Kleef, 2009, 2016) from which observers to infer information about the expresser, such as their assessment of their environment and their behavioral intentions (Elfenbein, 2007).

Facial expressions are a particularly salient form of emotional expression (Bonanno et al., 2002; Keltner et al., 2019). Seminal work on facial expressions of emotion began by examining how individuals label static images of facial muscle configurations as discrete emotions (Ekman et al., 1969; Matsumoto et al., 2008). This led to the development of basic emotion theory, which has identified a set of basic emotions that are distinct in their antecedent stimuli, physiological response, subjective experience, and expression (Ekman 1992; Tracy and Randles, 2011). Initially, Ekman and colleagues' (1972) development of basic emotion theory argued that facial expressions can be reliably distinguished as indicative of six basic emotions. However, recent research has employed computer-aided facial analysis algorithms, finding that facial expressions are reliably distinguished as indicative of only four basic emotions: happiness, anger, fear, and sadness (Jack et al., 2014).

Facial expressions of emotion can be directed toward others in an attempt to influence them in ways that benefit the expressor (Russell et al., 2003). As a result, entrepreneurs' facial expressions of emotion have the potential to influence potential funders when displayed in funding pitches. Funding pitches are relatively complex visual presentations that may feature multiple individuals and an array

of expressions. Humans are evolutionarily wired to efficiently process such complex visual presentations (Whitney and Yamanashi Leib, 2018) and, in doing so, quickly evaluate others' emotional expressions, often without conscious awareness (Ramachandran and Jalal, 2017; Tooby and Cosmides, 2005, 1990). Because people use facial expressions to make inferences about others, it follows that potential funders would be attuned to, and influenced by, entrepreneurs' facial expressions of emotion within a funding pitch.

Changes among facial expressions of basic emotions are also an influential source of information for observers since they increase observer attention and provide insight into the authenticity of expressions (Kovarski et al., 2017; Niedenthal et al., 2001). Changeable states of facial expression include the basic emotions (happiness, anger, fear, sadness) and the rest state—neutral. Reflecting this, lab experiments that examine change in emotional expression commonly include changes from facial expression of one emotion to facial expression of another, and changes to or from a neutral expression (e.g., Trautmann et al., 2009), such as "neutral-to-fear, neutral-to-anger, and fear-to-anger," for example (Thomas et al., 2007: 547). Evolutionary psychology research on change detection suggests that noticing and reacting to changes involves different attentional mechanisms depending on the emotional significance of the change (Palermo and Rhodes, 2007). Changes without emotional significance require substantial attentional resources to be noticed (Rensink, 2002), whereas those with emotional significance—like emotionally expressive human faces—are processed quickly and preattentively.[1] As such, people are generally well-equipped to quickly detect changes in others' facial expressions (Ro et al., 2001), which has been established in multiple lab experiments (e.g., Kovarski et al., 2017; Niedenthal et al., 2001).

3. Objects of facial expressions of emotion in funding pitches: Qualitative analysis

3.1. Sample

There is no prior literature on facial expressions of anger, fear, or sadness in entrepreneurial funding pitches (cf. Jiang et al., 2019). Accordingly, we first conducted a qualitative analysis of facial

[1] Preattentive processing occurs before attention, independent of consciousness (Treisman, et al., 1992). Preattentive processing can be distinguished from automatic processing in that while both are independent of attention, preattentive mechanisms are acquired early in life (or innate).

expressions of emotion in funding pitch videos to provide a basis for theorizing about how basic emotions may shape funding outcomes. Our aim was to engage in theory elaboration (e.g., Fisher and Aguinis, 2017) by exploring the objects of entrepreneurs' facial expressions of happiness, anger, fear, and sadness in funding pitch videos. By conducting this analysis, we expect to be better able to contextualize our subsequent theorizing and hypothesis development.

We examined the increasingly prevalent context of crowdfunding (Pollack et al., 2021; McKenny et al., 2017; Short et al., 2017). In this form of fundraising, entrepreneurs create campaigns to solicit financial capital from the general public via an internet-based platform. The centerpiece of most crowdfunding campaigns is the funding pitch video. Crowdfunding videos often prominently feature the faces, and thus the facial expressions, of those delivering the pitch. Potential funders viewing crowdfunding pitches tend to lack experience and expertise in evaluating new ventures, invest little time in pitch evaluation, and make relatively small contributions to pitches they choose to fund (Allison et al., 2017; Anglin et al., 2018a). As such, subjective information, such as emotional expressions, is especially influential in crowdfunding (e.g., Davis et al., 2017; Li et al., 2017).

Our sampling frame includes all Kickstarter campaigns that launched between 2009 and 2016. We drew an initial random sample of 1,000 campaigns. We screened these campaigns, retaining those with a pitch video in which an entrepreneur's face was visible. Thirty-two had no video. Of the 968 remaining, approximately half did not meet one or more parts of our inclusion criteria. For example, some contained only a video or animation in which a face was not displayed (e.g., a voice-over). Others were videos which were not a funding pitch (e.g., a movie trailer). Ultimately, a final sample of 489 funding pitches remained.

3.2. Identifying facial expressions of emotion

Ekman and Friesen (1978) pioneered the measurement of facial movement by developing the Facial Action Coding System (FACS) to capture and categorize facial expressions. Using 44 *action units*, defined as the position of one or more facial muscles, FACS describes visual facial expressions. Given that combinations of these action units are associated with certain emotions, FACS enables the researcher to objectively measure facial expressions of emotions (Ekman et al.,

2002). Figure 1 diagrams these action units. Facial expression analysis has historically relied upon trained experts to manually code facial action units frame-by-frame based on the FACS framework. However, this process is subject to bias due to coder fatigue and the affective state of the coder. Computers, on the other hand, do not tire, aiding reliability (McKenny et al., 2018). As such, we relied on computer-aided facial expression analysis for our coding.

Insert Figure 1 here

Computer-aided facial expression analysis has advanced in recent years (Loijens and Krips, 2018), with recent studies employing algorithms such as FaceReader (Jiang et al., 2019) and Affectiva AFFDEX (Stroe et al., 2020). Our choice was Emotient FACET (iMotions, 2019) for three key reasons: the software's close alignment with our theoretical framework—basic emotion theory (Ekman, 1992; Keltner and Cordaro, 2017; Tracy and Randles, 2011)—evidence of the software's strong reliability, and its incorporation of FACS. In addition to its use of facial action units to measure emotional expressions, Emotient FACET analyzes patterns of wrinkles and crevices that are created by facial expressions, an approach superior to pure facial-point-based architectures (iMotions, 2019). In a validation study, Emotient FACET measured facial expressions with 96% accuracy, which is superior to other software (Bernin et al., 2017), including FaceReader (88%) and Affectiva AFFDEX (68%; Stöckli et al., 2019). Emotient FACET has also been found to be reliable across gender and race and has been validated against the Extended Cohn-Kanade (CK+) database of facial expressions (iMotions A/S, 2019; Lucey et al., 2010).

Emotient FACET measures facial expressions frame-by-frame within a video (frames are typically $1/30^{th}$ or $1/25^{th}$ of a second) (Montgomery, 2018). For each frame, the algorithm analyzes the displayed facial expressions and calculates an evidence score for each emotion (iMotions A/S, 2019). Evidence scores represent the odds of an expression being present. An evidence score of 1.0 indicates that an expression is 10 times more likely than not to be categorized by an expert human coder as indicative of the focal emotion. Using these values, we classified each frame of video as displaying one of the four basic emotions, or none of them (i.e., neutral expression). This approach mirrors prior video analysis work in which researchers capture the *occurrence* and *frequency* of target

behaviors (cf. Waller and Kaplan, 2018). The cutoff for classification is an evidence score of 1 (Huang and Khan, 2016), which represents a minimum probability of the emotion's presence of 0.91 (*probability* = $1 / (1 + 10^{-\text{evidence score}})$). This level of confidence is comparable with the minimum probabilities associated with measurement reliability norms employed in human-coded content analysis (e.g., 0.80; and Krippendorff, 2007).[2] This threshold ensured that few frames (< 0.01%) were classified as displaying more than one emotion; of those that did, the emotion with the highest evidence score was used as the emotion present. Before proceeding with our qualitative analysis, we confirmed that facial expressions of each emotion are displayed in funding pitches. Of the 489 funding pitches in our sample, 487 (99.6%) displayed happiness, 338 (69.1%) displayed anger, 379 (77.5%) displayed fear, and 323 (66.1%) displayed sadness, at least once in the pitch.

3.3. Coding the objects of facial expressions of emotion

We began by calculating the percentage of the video in which each of the four emotions was present (cf. Stroe et al., 2020) to measure entrepreneurs' facial expression of happiness, anger, fear, and sadness over the course of their video-based pitch. To narrow our sample of funding pitches for our qualitative analysis, we identified four sets of 50 funding pitches that exhibited the highest frequency of facial expressions of each of the four emotions (200 pitches in total). Facial expressions of emotion in a pitch are often coincident with speech specific to a topic within the funding pitch (e.g., customer problem/pain; product description; need for funding). These topics provide insight into the object(s) of each expression. To understand these objects of entrepreneurs' facial expressions of each emotion, two authors analyzed the 50 pitches identified for each emotion (200 total), transcribing the words spoken concurrent to each facial expression, as well as the words spoken before and after the expression to aid contextual understanding.

We started with an open coding approach (Corbin and Strauss, 2015) in which the words spoken concurrent to the facial expressions of each emotion were categorized and labeled as codes for objects of the entrepreneurs' facial expressions of that emotion. The authors progressed through

[2] We repeated the analyses which follow using evidence scores corresponding to probabilities of 0.80 and 0.95. All results hold at the 0.80 level. All results also hold at the 0.95 level, except for one predictor for a single dependent variable (fear was no longer a statistically significant predictor of dichotomous performance (met goal).

this process independently, meeting after every 10 pitches to compare codes and reach full consensus. This process was recursive; codes were revised according to updated understanding of the objects of the entrepreneurs' facial expressions (Corbin and Strauss, 2015; Suddaby, 2006). Codes were combined when they accounted for substantially similar concepts and were broken into separate codes when they comprised multiple, distinct concepts (Corbin and Strauss, 2015; Gephart, 2004). This culminated in a list of first-order codes for facial expression of each emotion.

The authors then proceeded to group first-order codes into second-order theoretical themes to develop, relate, and differentiate codes (i.e., axial coding; Corbin and Strauss, 2015). The authors repeatedly compared emerging themes with transcriptions of the words communicated concurrently with the facial expressions (Glaser and Strauss, 1967). This iterative process continued until no new themes were produced. These second-order themes reflect the four aggregate dimensions we sought to understand: the objects of entrepreneurs' facial expressions of happiness, anger, fear, and sadness in their funding pitches. Figure 2 illustrates the data structure that emerged from this qualitative analysis, consistent with Gioia, Corley, and Hamilton (2013). We now discuss our findings and highlight example quotations, which represent the themes we identified as objects of entrepreneurs' facial expressions of each emotion. Table 1 presents additional example quotes of identified themes. In Table 1 and our reference to specific quotes in the sections that follow, we emphasize the words coinciding with the facial expression of emotion in bold.

Insert Figure 2 and Table 1 here

3.3.1. Happiness

Facial expressions of happiness served multiple purposes in highlighting positive aspects of a funding pitch. Our analysis revealed that entrepreneurs often displayed facial expressions of happiness when discussing themselves and their team, their passion for the project, the value of their proposed product/service to funders, when using humor, and when discussing communal topics.

First, entrepreneurs' facial expressions of happiness were often manifest when introducing themselves or their team members and when emphasizing pride in their team. For instance, one entrepreneur who sought funding for a comedy film that she was directing expressed happiness when

talking about others involved in the project and their skills: *"I actually have two editors. One has been to school for it and* ***he's like a genius, he really is. Both of them being on this project with me, is amazing****. They're both* ***so good at editing.****"*

Second, entrepreneurs expressed happiness when discussing their passion, including the personal importance of the project and their project-related accomplishments. For example, one entrepreneur who sought funding to produce her TV show expressed happiness when highlighting her progress: "*I have been doing [the show]* ***for 7 years*** *basically on my own.* ***I've edited the show, produced the show,*** *and now I'm starting a Kickstarter campaign to produce the show I want to produce and give you guys a quality show. … [The show] has* ***long been a passion of mine****."*

Third, entrepreneurs expressed happiness when highlighting the value of their proposed product/service to funders, with statements such as: "*You can choose the* ***color and the style*** and *we'll send it to you so that you're amongst the first to* ***enjoy the safety and security that the wrist guardian offers****"* (smart watch for family security).

Fourth, happiness was also expressed when using humor. For instance, entrepreneurs sometimes made jokes when telling potential funders that they should give money: "***Hi! My name is [name] and I want you to give me money***" (spoken in a joking manner; short film about dancing).

Finally, entrepreneurs displayed facial expressions of happiness when emphasizing communality with funders, including statements associated with appreciation for funders and invitations to join in: *"You can grow with us and you can be* ***part of that voice*** *in order to establish what we want to do in the future. And* ***that's to share good stories*** *… So right now, we're at an opportune time for people to be* ***a part of us and be part of that voice and that mission****"* (theater).

3.3.2. Anger

We identified three themes when analyzing entrepreneurs' facial expressions of anger within their pitch. Facial expressions of anger were manifest when entrepreneurs discussed the seriousness of the problem they were solving, when highlighting their determination to execute the project, and when asserting their competence.

First, entrepreneurs expressed anger when discussing the importance of a problems they were combatting, such as when emphasizing the importance of a problem being addressed, details associated with their project, and specifics surrounding their need for funding. For example, an entrepreneur making a film about child brides in Yemen expressed anger when discussing the problem confronted by her project and the details of getting the film off the ground: *"It's about a woman who was given away by her family at 12 years old and* ***she was married off to a man 22 years older****. She was traded for a wad of cash and a goat on a rope.* ***That was the value of her life.*** *I want to tell this story.* ***We have to pay for locations, insurance, craft services, costumes, makeup, food. Literally every dollar counts****."*

Second, entrepreneurs displayed facial expressions of anger when discussing their determination, including the personal importance of their project, their dedication, and obstacles they had overcome. For instance, an entrepreneur who sought funding for a video game displayed facial expressions of anger when discussing his team's determination to see the project through: "***I would like to introduce the people who have spent the past 2.5 years researching and developing this video game. Some have even moved across the nation to make this game happen****."*

Finally, entrepreneurs displayed facial expressions of anger when asserting competence, as illustrated by an entrepreneur pitching an art exhibit inspired by nature: "*I entered the United States Navy,* ***serving my country in the field of illustration drafting****. My* ***combination of business and art talents*** *have given me the adventures of participating in art exhibits throughout this great country."*

3.3.3. Fear

Our analyses also uncovered three themes of the objects of entrepreneurs' facial expressions of fear. Entrepreneurs displayed facial expressions of fear when discussing their need for resources, when highlighting issues that have hindered their progress (or might in the future), and when referencing concepts related to their vision for the project.

First, entrepreneurs displayed facial expressions of fear when emphasizing their need for resources and their concerns regarding what would happen if they do not raise adequate funding. Reflecting this, one entrepreneur expressed fear when listing numerous expenses associated with

successfully executing his team's project, an art exhibition and accompanying catalog: "***We need your help*** *... The show itself is only one aspect of the overall project. Your donations will help cover our* ***rental fee, postage for all of the catalogs, and our printing costs.****"*

Second, entrepreneurs displayed facial expressions of fear when noting hindrances to their progress, including past, current, or anticipated future difficulties. One entrepreneur expressed fear when explaining complexity in running a summer theater program due to its remote location in the mountains of Greece: *"The whole program is a remarkable achievement that has taken many years and input from* ***so many people to create, both in its crazy logistics—believe me it isn't easy managing 35 theater artists in the mountains of Greece*** *with no cell phones and very little email access—but also in its creative and artistic design."*

Finally, entrepreneurs displayed facial expressions of fear when discussing their vision, suggesting uncertainty surrounding long-term aspirations as a "dream," or that realizing these aspirations would be a "miracle." A U.S.-based Scandinavian folk music group, for example, explained: *"It has* ***long been a dream of ours to, at some point****, travel to Scandinavia and meet up with some of the master musicians."*

3.3.4. Sadness

We uncovered three themes of the objects of entrepreneurs' facial expressions of sadness in funding pitches. These expressions were displayed while communicating concerns, relating a disappointment, or when engaging in supplication by asking for help in a sincere manner.

First, entrepreneurs displayed facial expressions of sadness when communicating concern, including concerns related to people affected by a problem they are seeking to address, their personal experience with the problem, or concern regarding a current, past, or anticipated future situation. For example, an entrepreneur displayed facial expressions of sadness during his pitch for an online substance abuse recovery program when discussing his concern for the difficulties that drug addicts experience: "***I want to dedicate this fight to anyone who's struggling today, I love you all.****"*

Second, entrepreneurs displayed facial expressions of sadness when discussing past failures or anticipated disappointment if they are not able to pursue their project. Reflecting this, one filmmaker

expressed sadness when discussing how disappointed he would be if unable to make the film he was pitching: "***I need to make this movie. It's time. It's something I've wanted to do my entire life, and if I don't do it now, I don't know when I will have the chance again. I wish I wasn't here having to ask you for money. But we need this money to make this movie, if we don't get this $7,000, it's not going to happen; we are going to have to shelve the project.***"

Finally, we found that entrepreneurs displayed facial expressions of sadness as supplication, sincerely asking for help and communicating appreciation to potential funders. One entrepreneur, for example, explained her team's desire to produce a television series showcasing the talent of emerging musicians to celebrate her region's musical heritage, displaying facial expressions of sadness when posing a call for financial support: "*At this point,* ***we are looking for your help. Simply put, we need assistance to complete the program, and that's where you as an individual or your organization can help to make this show a reality and promote our natural talent.***"

3.3.5. Changes in facial expression of emotion

Having ascertained that entrepreneurs express happiness, anger, fear, and sadness in their pitches, and having identified the objects of these expressions, we proceeded to investigate the nature of changes in entrepreneurs' facial expressions of emotion. Examples of changes in facial expressions include a change from facial expression of any of the four emotions to a neutral expression or vice versa, and any of the four emotions to any of the three other emotions. We focused this aspect of our qualitative analysis on the 25 pitches with the most changes in facial expressions of emotion (i.e., most frequent changes) and the 25 pitches with the fewest changes (i.e., most infrequent changes). The same two authors examined these additional 50 pitches.

Pitches with frequent changes in facial expressions appeared to be subjectively more engaging. Entrepreneurs in these pitches used changes in their facial expressions of emotion as punctuation to emphasize key points. For example, when pitching for resources to tour her debut album, one entrepreneur in our sample switched among different facial expressions of emotion. She began by expressing happiness, saying: "***I'm really excited to share my songs with you***," before moving to a facial expression of fear when highlighting uncertainty regarding the potential for

success: "*I am* ***shooting for the moon on this one***." Later, she changed back to a facial expression of happiness when talking about her bandmates, stating: "*I just* ***can't wait for you to hear [my drummer], he is just so, so good***," before expressing sadness, followed by fear when saying: "***I decided to give Kickstarter a try, because on a preschool teacher's salary I do have time to record in summer, but I'm not getting paid****. It's just something that's* ***not in my reach financially***." Finally, she returned to a facial expression of happiness when concluding her pitch, discussing rewards for funders: "***So please check out the list of rewards available on the side!****"*

Another entrepreneur similarly displayed frequent changes in her facial expressions of emotion when pitching a comic book that she wrote, frequently changing to and from facial expressions of happiness. She began with a facial expression of happiness when introducing herself: *"Hi,* ***my name is [name]!*** *I am a cartoonist and illustrator."* After explaining that her previous comic books have been relatively short, she displayed a facial expression of anger when asserting her determination to improve, stating, *"This year,* ***I decided to set my sights higher****."* She again displayed a facial expression of happiness when discussing her progress on the new comic and how it reflects her passion: *"****For the last 6 months, I've been writing an illustrating a 36-page comic … and it's finally ready to see the light of day … [This comic] is a story about having the guts to do what you love****."* She continued expressing happiness when discussing its inspiration, saying, "*The story is an* ***homage to one of my mentors****,"* then changing to a facial expression of sadness when discussing his untimely death: "***He passed away last year due complication related to leukemia. His influence on my comics has been enormous and this work is a testament to that influence.***" She returned to a facial expression of happiness when describing her progress, "***The process of making this comic has been extremely hands-on****,"* followed by a facial expression of sadness when discussing her financial constraints, "*Unfortunately,* ***printing comics of this caliber costs more than I can afford.****"* Afterward, she changed back to a facial expression of happiness when inviting people to contribute: "***Which is where you come in****,"* continuing to express happiness when explaining rewards offered to those who contribute. Finally, she briefly displayed fear when talking about the project as a dream: "***There's a whole bunch of incentives to help*** (facial expression of happiness)

make this dream a reality (facial expression of fear)," concluding with a facial expression of happiness, stating, "***I can't wait to share this story with you. It's going to be awesome.***"

In contrast, the pitches containing infrequent changes in facial expressions of emotions lacked such emphasis and appeared less engaging. Some entrepreneurs displayed facial expressions of happiness quite consistently, but did not express any other emotions and/or neutral facial expressions. Alternatively, some entrepreneurs were quite neutral in their facial expressions throughout the pitch, even when discussing emotionally laden content. One entrepreneur, for example, closed his pitch with a neutral facial expression despite the positivity of his words: "*I hope this has inspired you to donate*." Similarly, another entrepreneur in our sample displayed a neutral facial expression throughout much of his pitch for a book about his research on dementia. This neutral expression remained even while he employed emotionally laden language, saying: "*We might be on the brink of something really big here. We might be able to change the lives of millions of people and perhaps at least delay the onset of this terrible occurrence we call dementia*."

4. A dual threshold model of the frequency of facial expressions of emotion in funding pitches

Our qualitative analysis reveals that all four basic emotions are expressed in funding pitches. Moreover, our axial coding revealed common themes of the objects of entrepreneurs' facial expressions of these emotions within funding pitches. These suggest that facial expression of these emotions might prove beneficial in promoting funding. Aided by this contextualized understanding of entrepreneurs' facial expressions of happiness, anger, fear, and sadness, we proceed to theorize about the influence of each on funding. Specifically, we build upon research which suggests that the influence of emotional expressions on others depends on how frequently emotions are expressed.

Emotional expression research holds that how an expression is received by others is shaped by *display rules*—social norms governing appropriate expression (Ekman, 1993). These influence the extent to which an expression engenders positive or negative effects in social interaction. The dual threshold model of anger suggests that display rules define (1) an expression threshold beyond which an emotion is expressed to receivers in an acceptable manner, and (2) an impropriety threshold, which defines the point at which the expression of an emotion violates social norms of

appropriateness (Geddes and Callister, 2007). The model predicts that expressions of anger are more likely to engender positive individual and organizational outcomes—such as resolving conflict and promoting positive organizational change—when they cross the expression threshold such that they are perceptible to observers (Geddes et al., 2020). The model further predicts that expressing anger so frequently that it crosses the impropriety threshold increases the likelihood of negative outcomes (Geddes and Callister, 2007). Beyond the impropriety threshold, the expression violates display rules of acceptable behavior. Expressing an emotion more frequently than that deemed acceptable by a situation's social norms may lead one's expressions to be interpreted by receivers as inappropriate, undermining otherwise positive outcomes in social interactions. Shields (2005) highlights this point in her work on social norms surrounding emotional expressions: "The 'too emotional' response is read as the response of someone who is 'merely' emotional," thereby detracting from the message at hand; the 'not emotional enough response' is read as the response of someone who is not genuinely engaged with others" (p. 12). These relationships are amplified for more extreme violations, where the expressor may be perceived as emotionally disturbed (Thoits, 2003).

Although the dual threshold model of anger is built around expressions of anger within organizations, it has been suggested that the model may also apply to expressions of happiness, fear, and sadness (Geddes and Callister, 2007). For example, research consistent with the dual threshold model in a customer service context suggests that highly frequent expressions of happiness or sadness are more likely to be rated as inappropriate and inauthentic, reducing trust and satisfaction (Cheshin et al., 2020). We view this as suggestive of the applicability of the dual threshold model to emotional expressions in contexts outside the organization. Focusing on the frequency of emotional expressions during a funding pitch, we build upon the dual threshold model of anger in organizations to extend the dual threshold model to expressions of happiness, anger, fear, and sadness in funding pitches. We begin our theoretical development regarding facial expression of each emotion with the expectation of inverted U-shaped effects of expressions of an emotion, as this is the nonlinear relationship implied by the model's general prediction that expressions of an emotion have positive effects until they exceed an impropriety threshold, beyond which negative effects become increasingly likely.

Recognizing that the reasons for these positive and negative effects likely differ by emotion, we develop explanations regarding the frequency of facial expression of happiness, anger, fear, and sadness in funding pitches as separate hypotheses, which follow.

4.1. Happiness

Emotions scholars have conceptualized happiness as the primary, if not sole, positive basic emotion (e.g., Ekman, 1992). Happiness is often experienced and expressed when making reasonable progress toward the realization of one's goals (Lazarus, 1991). Consistent with this notion, our qualitative analysis found that entrepreneurs in our sample expressed happiness when highlighting their progress as well as factors that enabled their progress, such as their team's ability, their passion, or funders' support.

A significant body of work provides evidence of the benefits of experiencing and expressing positive emotions and moods such as happiness, including successful outcomes in work and life, as well as more favorable assessments of the expresser (Barsade and Gibson, 2007; Lyubomirsky et al., 2005). Entrepreneurship scholars have found that entrepreneurs' expressions of positive emotions such as enthusiasm and excitement promote funding, often construing such expressions as indicative of passion (e.g., Cardon et al., 2017; Davis et al., 2017; Li et al., 2017; Murnieks et al., 2016). In a similar vein, employees who frequently express positive emotions are evaluated more favorably by their managers, are paid more, and receive more social support from their coworkers and supervisors (Staw et al., 1994; Wright and Staw, 1999). People who are express happiness are judged by others as more competent and assertive, suggesting an ability for efficacious action (Lyubomirsky et al., 2005). Research on funding pitches provides evidence that such qualities are important to funders, finding that displays of both confidence and a propensity to act are positively related to funding (e.g., Anglin et al., 2018a). As such, expressions of happiness are consistent with funders' expectations that entrepreneurs display confidence and propensity to act, particularly given that the necessity to act in the face of the uncertainty is inherent to the early stages of entrepreneurship (McMullen and Shepherd, 2006). Entrepreneurship scholars have further lauded the benefits of entrepreneurs' experience of positive affect—which is displayed to others via expressions of happiness—including

its role in facilitating opportunity recognition, responding to dynamic environments, expanding one's skills and social networks, and persuasion (Baron, 2008). Taken together, this suggests that entrepreneurs' facial expression of happiness promotes funding.

However, expressing happiness too frequently in a funding pitch could be detrimental. Despite its general positive influence, scholars have found that spending too much time expressing happiness at a peak level is negatively related to funding (Jiang et al., 2019). Moreover, entrepreneurship scholars have found that, beyond a given point, entrepreneurs' dispositional positive affect—which reflects their frequent experience of positive emotions such as happiness—is associated with declines in firm performance (Baron et al., 2011). Baron and colleagues (2011) explain these findings by noting that experiencing very high positive affect may lead entrepreneurs to make unrealistically favorable estimates of their success, perhaps reducing motivation to continue to innovate and reducing their attentiveness to negative information. In that people who express happiness more frequently are perceived to be happier, entrepreneurs' frequent facial expression of happiness in a pitch may communicate such an overly positive outlook to others, engendering negative inferences about them. Indeed, people who express that they are very happy are perceived by others as naïve (i.e., lower competence) and as more likely to avoid or ignore negative information (Barasch et al., 2016). Such qualities conflict with funders' expectations that entrepreneurs demonstrate competence (e.g., through their experience) and openness to feedback (Warnick et al., 2018). Considering the positive influence of facial expression of happiness together with the potential negative influence of highly frequent facial expression of happiness, we hypothesize:

> *Hypothesis 1: The frequency of entrepreneurs' facial expression of happiness in a funding pitch has an inverted U-shaped relationship with funding.*

4.2. Anger

Anger is experienced and expressed when goal pursuit has been blocked (Carver and Harmon-Jones, 2009), motivating action to remove problematic elements of a situation (Lerner and Tiedens, 2006; Parkinson, 2017) or to address an appraised wrong (Geddes et al., 2020). The experience of anger is associated with optimistic risk estimates and risk-prone behavior (Fessler et al., 2004; Lerner and Kelter, 2000, 2001), including that of entrepreneurs in their opportunity evaluation and

exploitation (e.g., Foo, 2011; Welpe et al., 2012). Consistent with this, our qualitative analysis revealed that entrepreneurs express anger when discussing the seriousness of the problem being addressed as well as factors related to overcoming a problem, such as their determination to succeed and their competence. Entrepreneurs' facial expression of anger may thus encourage funders to provide financial capital. Indeed, entrepreneurship is inherently based in identification, evaluation, and exploitation of opportunities (Shane and Venkataraman, 2000), which scholars have also described in terms of problem solving (e.g., Hsieh et al., 2007). Moreover, facial expression of anger may lead to favorable perceptions regarding ambition (Van Kleef et al., 2010), as well as perceptions of competence, determination, toughness, power, and status (Hareli and Hess, 2010; Harmon-Jones et al., 2011; Tiedens, 2001; Veling et al., 2012). Such traits are valued by potential funders (e.g., Alsos and Ljunggren, 2017).

Despite the potential benefits of expressing anger in social interaction, highly frequent expression of anger renders negative outcomes more likely (Geddes and Callister, 2007; Geddes et al., 2020). Expressing anger too frequently relative to the display rules for the situation crosses the impropriety threshold, leading to negative inferences about the expresser (Geddes and Callister, 2007). For instance, highly frequent expression of anger within negotiation setting tends to be perceived as inappropriate by the other party, reducing cooperation and damaging the relationship (Côté, 2005; Van Kleef et al., 2004a, 2004b; Van Kleef and De Dreu, 2012). Similarly, employees who express anger more frequently in the workplace than is acceptable may perceived as "volatile, out of control, aggressive, or unprofessional" (Geddes and Callister, 2007: 733), overconfident, reckless, or irrational (cf. Frijda, 1986; Geddes and Callister, 2007). Such qualities are theorized to lead to poor entrepreneurial performance (Hmieleski and Baron, 2008), with research suggesting they reduce funding (Forbes, 2005; Warnick et al., 2018). Thus, taking the positive influence of facial expression of anger together with the negative influence of highly frequent facial expressions of anger, we hypothesize:

> *Hypothesis 2: The frequency of entrepreneurs' facial expression of anger in a funding pitch has an inverted U-shaped relationship with funding.*

4.3. Fear

Fear is often experienced and expressed when encountering a stimulus that is perceived as unpredictable and uncontrollable (Foo, 2011; Lerner and Keltner, 2000, 2001; Ortony and Turner, 1990; Smith and Ellsworth, 1985). The experience of fear reflects a threat appraisal (Cacciotti and Hayton, 2015), with its expression signaling to others that a threat is present in the environment (Marsh et al., 2005). For this reason, people are highly attuned to others' facial expressions of fear, increasing their attention when such cues are displayed (LaBar, 2016; Öhman, 2002). As a result, the expression of fear can lead others to form positive attitudes regarding proposed behaviors that are meant to remedy the threat at hand (cf. Das et al., 2003; de Hoog et al., 2005; Nabi, 2002), particularly when it is perceived that specific threat-reducing actions can be taken (DeSteno et al., 2004). Entrepreneurship is inherently uncertain (McMullen and Shepherd, 2006), entailing threats such as those associated with financial constraints. This suggests that some acknowledgement of this uncertainty and potential threats via one's facial expressions of fear may prove beneficial in a funding pitch. Along these lines, our qualitative analysis shows that entrepreneurs sometimes display facial expressions of fear when discussing their vision, perhaps indicating some degree of uncertainty related to the achievement of such long-term goals without funders' help.

Expressing fear can also encourage receivers to join with others and work to avoid or overcome a common threat (cf. Griskevicius et al., 2006, 2009). Crowdfunding is an example of this in that it requires collective funder support (e.g., Kuppuswamy and Bayus, 2017; Lin et al., 2014). Here, communicating the presence of a threat to be feared is a technique used to marshal resources for entrepreneurial ventures (e.g., Ruebottom, 2013). For instance, our qualitative analysis found that entrepreneurs expressed fear when discussing issues that have hindered their progress in the past or might in the future and when discussing their need for resources. Facial expression of some fear may prove valuable in funding pitches as a means by which entrepreneurs convey the salience of a problem and awareness of potential obstacles, thereby promoting funding.

Despite the potential benefits of displaying facial expressions of fear in a funding pitch, highly frequent facial expression of fear may hinder funding. Indeed, beyond the impropriety

threshold, expressions of fear communicate a high degree of anxiety, uncertainty, or uncontrollability of the situation, making disengagement with the expressor's message more likely (cf. Henthorne et al., 1993). Consistent with this notion, scholars have found that persuasion is most effective when a speaker highlights not only a threat but also a solution to reduce the threat (Dillard et al., 2017). This pattern suggests that, beyond a given point, entrepreneurs' expression of fear in a funding pitch is counterproductive, which is consistent with research demonstrating that entrepreneurs' experience of fear increases risk estimates in opportunity evaluation (Foo, 2011) and discourages intentions to pursue an entrepreneurial opportunity (Welpe et al., 2012). Reflecting this, entrepreneurs' highly frequent expression of fear may convey such uncertainty and uncontrollability that it raises doubts regarding their ability to proactively address such threats upon receipt of funding. Taking the positive influence of facial expression of fear together with the negative influence of highly frequent facial expression of fear, we hypothesize:

> *Hypothesis 3: The frequency of entrepreneurs' facial expression of fear in a funding pitch has an inverted U-shaped relationship with funding.*

4.4. Sadness

Sadness reflects an appraisal of loss or prolonged adverse circumstances (Lazarus, 1991; Frijda, 2007) and can indicate that a situation is problematic (DeSteno et al., 2004; Schwarz et al., 1991; Tiedens and Linton, 2001). For instance, our qualitative analysis found that entrepreneurs display facial expressions of sadness when communicating concern related to the problem they seek to address with their venture. Further, sadness is also often expressed when soliciting help to achieve a goal that is meant to prevent such a loss (Hackenbracht and Tamir, 2010). Within entrepreneurship in particular, sadness is often associated with loss in terms of venture failure (e.g., Jenkins et al., 2014; Mantere et al., 2013; Patzelt and Shepherd, 2011). Such was the case with the entrepreneurs in our sample, who expressed sadness when discussing anticipated disappointments if they are unable to proceed or when engaging in supplication by asking funders for help in a sincere manner. Expressing sadness can also increase the extent to which one is perceived as warm, nice, and likeable (Keltner and Buswell, 1997; Keltner et al., 1997), and in the face of adverse circumstances, may engender perceptions of the expresser's sincerity (e.g., Stephens et al., 2019). Expressing sadness in a

collaborative setting may also lead receivers to feel concern for the expressor (Sinaceur et al., 2015). In this way, expression of sadness can encourage prosocial behaviors (Lazarus, 1991) and increase persuasion (DeSteno et al., 2004; Dillard and Peck, 2000; Nabi, 2002). As a result, entrepreneurs' facial expression of sadness, when displayed with appropriate frequency, may promote funding.

However, Entrepreneurs who display facial expressions of sadness in their funding pitches too frequently may be perceived as lacking necessary motivation and/or competence. Indeed, funders value tenacity (Murnieks et al., 2016). In contrast, sadness is a relatively passive emotion that, when expressed, can engender perceptions of weakness, submissiveness, and incompetence (Tiedens, 2001). As such, entrepreneurs' expression of sadness may raise concerns given that the entrepreneurial process requires entrepreneurs to persevere through challenges and remain motivated in pursuit of their goals to promote venture success (Cardon and Kirk, 2015; Mueller et al., 2017). The negative perceptions associated with highly frequent expression of sadness likely hinder funding given that highly frequent expressions of sadness may lead potential funders to perceive that entrepreneurs are helpless and lack other valued attributes (e.g., tenacity, competence). Taking the positive influence of facial expression of sadness, up to a certain frequency of expression, alongside the negative influence of highly frequent facial expression of sadness, we hypothesize:

> *Hypothesis 4: The frequency of entrepreneurs' facial expression of sadness in a funding pitch has an inverted U-shaped relationship with funding.*

4.5. Frequency of change in expressions of emotion

When pitching their business or product, entrepreneurs face the challenge of holding the attention of potential funders to maintain their interest in the venture and, in turn, obtain needed funding (Anglin et al., 2018a; Shane et al., 2020). Potential funders' attention can wander in any pitch; this may be particularly true in crowdfunding, where funders can end the pitch with the click of a mouse, denying entrepreneurs the opportunity to regain funders' attention, interest, and money. Here, changes in facial expression of emotion may prove useful in promoting funding, given their ability to increase observer attention (Eastwood et al., 2001; Frischen et al., 2008) and cognitive engagement (Krumhuber and Kappas, 2005; Trautmann et al., 2009; Schmidt and Cohn, 2001).

In addition, the authenticity of emotions is revealed by the extent to which expressions change over time, such that people who change their expression infrequently are more likely to be perceived as inauthentic (Cohn and Schmidt, 2003). Extant work holds that funders value entrepreneurs' authenticity (Cardon et al., 2017). In consequence, pitches delivered with frequent changes in facial expressions are more likely to increase potential funders' attention and to reflect authentic expressions, thus promoting more favorable impressions of entrepreneurs and their ventures. Consistent with this, the pitches analyzed in our qualitative analysis with very frequent changes in facial expression appeared more engaging and dynamic, whereas those delivered with the fewest changes in facial expression appeared stiff, forced, or even disengaged. We thus expect that funding pitches in which entrepreneurs frequently change their facial expressions of emotion from one expression to another wield greater persuasive influence on potential funders compared to those delivered with relatively infrequent changes in facial expression.

Hypothesis 5: The frequency of change in entrepreneurs' facial expressions of emotion in a funding pitch—from one facial expression to another—is positively related to funding.

4.6. Measures

Using the Emotient FACET software and procedures described in section 3.2, we measured the frequency of facial expressions of each emotion (H1–H4) (i.e., the percentage of the video in which each of the four emotions) and the frequency of change in facial expressions of emotion (H5), both at the pitch level. We chose to measure at the pitch level for a few key reasons. Like traditional funding pitches, video-based funding pitches often feature more than one speaker. However, unlike traditional funding pitches, where speakers often self-identify their roles in the venture, making it possible to identify a leader, this is not common in crowdfunding. Examining the videos in our sample, it was often unclear what roles each speaker played. We thus opted to focus on the pitch as a whole rather than any specific speaker. This level of aggregation is appropriate as research on ensemble perception demonstrates that when presented with multiple different faces, images, or angles of the same face—as is the case in a video-based funding pitch—people extract summary information, such as the average of each facial expression of emotion in a pitch, rather than being influenced by an individual face or frame in particular (cf. Neumann et al., 2013; Whitney and

Yamanashi Leib, 2018). This suggests that funders process entrepreneurs' facial expressions at the pitch level, rather than forming a separate perception of each visible face. In addition, most other crowdfunding studies focus on pitch-level influences and outcomes (e.g., Anglin et al., 2018a; 2018b; Chan et al., 2020; Davis et al., 2017; Oo et al., 2020). Our approach also mirrors the broader financial resource acquisition literature, which is primarily conducted at the pitch level (e.g., Balachandra et al., 2019; Shane et al., 2020). Given these advantages, we focus on the pitch as our level of analysis and account for any speaker effects through a set of control variables explained below.

Our five independent variables each exhibited skewness with a right tail. Accordingly, to restrict the influence of these extreme observations on the normality of our measures, we used the natural log of each of the five measures.

4.6.1. Funding performance measures

Crowdfunding outcomes are multidimensional (Ahlers et al., 2015; Anglin et al., 2018b). Therefore, we operationalize funding with three different measures (e.g., Anglin et al., 2018b). Our first measure captures the total amount of funds raised for the campaign (e.g., Li et al., 2017). This measure is important because there is no limit to the amount of funds that can be raised, paralleling the broader entrepreneurial finance literature (e.g., Kanze et al., 2018). Second, we measure the total number of funders that contributed to the campaign. Indeed, the crux of crowdfunding depends on gaining many funders to support a project. The number of funders provides insight into the potential market for a campaign's offering (Anglin et al., 2018b). Finally, we measured whether a campaign met its target funding goal via a dichotomous measure (e.g., Oo et al., 2019), since entrepreneurs on Kickstarter do not receive any funds raised unless the funding goal is met.

4.6.2. Control variables

We looked to extant research in areas such as emotional expression, funding pitches, entrepreneurial finance, and crowdfunding research for potential alternative explanations. Three sources were used in the development of control variables for the study: readily available platform-based information, information gathered from the pitch itself by trained human coders, and information gathered from the pitch by computer-based analysis.

Looking first to platform-based data, we began by controlling for platform category (15 product categories) using random effects within category; we also controlled for the tangibility of the product being pitched (1 = tangible; 0 = not tangible; see Allison et al., 2017) and the word count of the written project description (Anglin et al., 2018). Following extant research, we further controlled for fundraising duration (days) and the campaign's funding goal in U.S. dollars (USD). Some platform categories are more popular and more competitive and this changes over time. Thus, we controlled for the total funding (USD) in each category during the year of each campaign.

We then developed a series of controls from information gathered by a team of three trained coders to account for visible characteristics of the entrepreneur(s) who delivered the pitch. First impressions often matter more, so we controlled for characteristics of the first speaker (Lesko and Schneider, 1978; Scharioth, 2012). Specifically, we controlled for race (1 if non-white; 0 otherwise), gender (1 if woman; 0 otherwise), age (1 = under 18; 2 = 18 to 24; 3 = 25 to 44; 4 = 45 to 64; 5 = 65 or older), and attractiveness (1 = very unattractive to 5 = very attractive; see Baron et al., 2006; Rule and Ambady, 2008). In some videos there was more than one entrepreneur visible (32.7% of our sample). As such, we also included controls for the percentage of women on the team and the percentage of non-white entrepreneurs on the team. We measured these percentages in decimal form between 0 and 1, and take the natural log of each to alleviate skewness. We also included controls for average attractiveness and average age of the team members. Finally, we accounted for whether the pitch was made by an individual or team (0 = individual, 1 = team; Calic and Mosakowski, 2016).

We followed established practice for funding pitch research by developing specific procedures and conducting training prior to the start of coding (Pollack et al., 2012; Scheaf et al., 2018). Each coder independently coded the first 50 pitches to establish initial interrater reliability. Krippendorff's alpha for speaker age was 0.85 prior to reconciliation.[3] Cohen's kappa was strong as well ($k = 0.83$). Krippendorff's alpha for speaker attractiveness was 0.83 prior to reconciliation ($k = 0.77$). After completing initial coding, the coders met to discuss and reconcile all discrepancies, achieving full agreement. The remaining funding pitches were evenly split among the three coders.

[3] Krippendorff (2004) suggests an alpha value of at least 0.67.

Finally, we developed a series of controls through information derived from our computer-based analyses. To account for the entrepreneurs' facial orientation within the video-based pitch, we measured facial yaw (left versus right facial position), roll (tilt of the head), and proximity (face size in the video), since such nonverbal factors play a role in interpersonal communication (Bonaccio et al., 2016; Burgoon et al., 2016). Each was measured as average value across all the frames of the pitch in which a face was present. Last, we controlled for video length, or more specifically, video length in which a face is present. We include this control because more than pure video length, the amount of time a face is present in a video may be influential. We measure this as the number of frames of video where a face was present.

4.7. Estimation procedures

We use multilevel modeling to test our hypotheses. Past work has noted that individual crowdfunding campaigns may not represent independent observations. Specifically, campaigns are likely not independent of their given project category in which the campaign was launched (Anglin et al., 2018b; Devaraj and Patel, 2016). Crowdfunding scholars have employed multilevel modeling to account for the lack of independence due to individual campaigns being nested within their project category (e.g., Anglin et al., 2018b; Devaraj and Patel, 2016). As such, our controls and independent variables make up level 1 of our models and categories make up level 2 of our models.

Our funds raised and number of funders variables are right-skewed, with long right tails, suggesting a gamma distribution. Such distributions often result in non-normal residuals, violating a key assumption of linear models. Past work has addressed this issue by using generalized linear models (GLMs) (e.g., Anglin et al., 2018a) because such approaches enable researchers to account for non-normality concerns (McCullagh, 1984). To model funds raised and number of funders, we employ GLMs that utilize the gamma distribution with a log-link function. This approach is robust to heteroscedastic errors common to non-negative data with long right tails (Ng and Cribbie, 2017).

We used multilevel logistic regression for our dichotomous dependent variable—meeting the fundraising goal (cf. Oo et al., 2019)—as is common when modeling relationships between a dichotomous dependent variable and a set of explanatory variables. All models were fit with

heteroscedasticity-consistent standard errors, which are unbiased and consistent in the presence of heteroscedasticity, to guard against model misspecification.

4.8. Results

Insert Tables 2 through 5 about here

Table 2 provides the means, standard deviations, and correlations for our variables. Tables 3, 4, and 5 report the results for the total funds raised, number of funders, and the likelihood of meeting the funding goal variables, respectively. Hypothesis 1 proposed a curvilinear, inverted U-shaped relationship between the frequency of facial expression of happiness and funding. Each of the quadratic terms indicate a curvilinear effect of the frequency of happiness on funding (funds raised, happiness squared = -12.24, p = .013; funders, happiness squared = -7.45, p = .000; met goal, happiness squared = -13.21, p = .000). Figures 3A through 3C plot the relationship between the frequency of expressed happiness and each dependent variable. Each figure suggests an inverted U-shaped relationship. Ceteris paribus, the relationship turns negative when happiness was expressed for more than 36% of the pitch (ln of happiness = 0.31) for funds raised and number of funders, and 32% of the pitch (ln of happiness = 0.28) for met goal. Thus, we find support for Hypothesis 1.

Insert Figures 3A through 5C about here

Hypothesis 2 proposed a curvilinear, inverted U-shaped relationship between the frequency of facial expressions of anger and funding. The quadratic terms in the funds raised model (anger squared = -10.02, p = .026) and number of funders model (anger squared = -7.29, p = .047) are consistent with the hypothesis. Figures 4A and 4B plot these relationships, indicating an inverted U-shaped relationship. Ceteris paribus, the relationship turns negative when anger was expressed for approximately more than 30% of the pitch (ln of anger = 0.26) for funds raised and 34% of the pitch (ln of anger = 0.29) for number of funders. Thus, we find support for Hypothesis 2 on two of our performance variables.

Hypothesis 3 proposed a curvilinear, inverted U-shaped relationship between the frequency of facial expressions of fear and funding. Each of the quadratic terms indicate a curvilinear effect of fear

on funding (funds raised, fear squared = -5.59, p = .000; funders, fear squared = -5.01, p = .000; met goal, fear squared = -13.57, p = .000). Figures 5A–5C plot these relationships. Each figure suggests an inverted U-shaped relationship. Ceteris paribus, the relationship turns negative when fear was expressed for approximately more than 52% of the pitch (ln of fear = 0.42) for both funds raised and number of funders and approximately 20% of the pitch (ln of fear = 0.18) for met goal. Thus, we find support for Hypothesis 3.

Hypothesis 4 proposed a curvilinear, inverted U-shaped relationship between the frequency of facial expressions of sadness and funding. None of the quadratic terms for sadness were statistically significant. Instead, we found a negative direct relationship between frequency of expressed sadness and funding performance ($p < .01$ for all three funding dependent variables), but not the hypothesized inverted-U relationship. Thus, we fail to find support for Hypothesis 4.

Hypothesis 5 proposed that the frequency of changes in facial expressions from one emotion to another is positively related to funding. All three of our models provide evidence for a positive relationship between frequency of change in facial expression and funding (funds raised, b = 0.16, p = .000; number of funders, b = 0.06, p = .001; met goal, b = 0.12, p = .010). Thus, we find support for Hypothesis 5.

Summarizing our results, we find a positive relationship for frequency of change in facial expression on emotion on funding performance as well as an inverted U-shaped relationship for the influence of frequency of happiness, anger, and fear on funding performance.

5. Discussion

Emotions and their expression play a central role in entrepreneurship (Cardon et al., 2012). However, knowledge remains limited concerning a key mechanism by which emotions are expressed: the face (e.g., Jiang et al., 2019; Stroe et al., 2020). Drawing on work in evolutionary psychology and emotional expression, including basic emotion theory (Ekman, 1992, 1999; Keltner et al., 2019), theory surrounding change detection (Rensink, 2002), and the dual threshold model (Geddes and Callister, 2007), we seek to demystify the role of entrepreneurs' facial expressions of emotion. Our study offers several important contributions.

5.1. Theoretical contributions

We examine the nuances of multiple emotions and their influence on funding to further knowledge concerning emotional expression in entrepreneurship. In research on funding pitches, positive emotions are often the focus. However, naturalistic facial expression often includes a variety of expressions beyond those that are positive, with each expression serving a distinct role in social interaction. As such, neglecting emotions that are deemed "negative" impedes our understanding of how expression of emotions common to the human experience relate to entrepreneurship. Moreover, the limited entrepreneurship research studying negative emotions has focused on their experience rather than their expression. To overcome these limitations, our study contributes a view of how entrepreneurs' facial expression of emotions, both positive and negative, influence funding performance.

Regarding fear and sadness, entrepreneurship scholars have often focused on potential venture failure as the object of entrepreneurs' fear (Cacciotti et al., 2016; Patzelt and Shepherd, 2011; Stroe et al., 2020; Welpe et al., 2012) and the loss of a venture as the object of entrepreneurs' sadness (Jenkins et al., 2014; Mantere et al., 2013; Patzelt and Shepherd, 2011). We extend these literatures by showing that concerns of failure and venture loss also relate to how entrepreneurs express fear and sadness in funding pitches. In addition to showing that fear may imply uncertainty in relation to an entrepreneur's vision and their ability to push forward if the call for resources is not met, our study suggests that expressing some fear is acceptable—or even preferred—in crowdfunding. This appears to run counter to popularized conceptions of the overconfident, dominant, or brash entrepreneur that are often perpetuated by the media (cf. Anglin et al., 2018b), instead providing evidence that funders favor entrepreneurs who show some semblance of uncertainty or trepidation concerning their venture. Expression of sadness, however, had a negative relationship to funding. It may be that the negative relationship of facial expressions of sadness with funding is due to the low activation (i.e., energy, intensity, or arousal) inherent to sadness relative to happiness, anger, or fear (Russell and Barrett, 1999).

Our theorizing and findings also provide evidence that expression of anger has previously unimagined roles to play in entrepreneurship. Scholars have found that experienced anger encourages entrepreneurs to exploit opportunities (Welpe et al., 2012) and reduces their risk perception in opportunity evaluation (Foo, 2011). We extend this work by illustrating that expressed anger is also associated with opportunity evaluation and exploitation. Specifically, entrepreneurs displayed facial expressions of anger to communicate the salience of the problem they were addressing, which may help others understand why an opportunity should be exploited. We also found that entrepreneurs expressed anger when communicating determination and competence to solve a problem, implying that the entrepreneur's evaluation of the opportunity is favorable.

Next, extant research has often construed entrepreneurs' positive expressions as being indicative of their passion (Cardon et al., 2017; Chen et al., 2009; Li et al., 2017; Mitteness et al., 2012; Shane et al., 2020). Our study builds on this, demonstrating that entrepreneurs may convey their passion(s) through a variety of emotional expressions, including negative expressions. For instance, entrepreneurs displayed facial expressions of anger when highlighting motivational aspects of their passion (e.g., determination), displayed facial expressions of fear when highlighting their desire to pursue their passion and their vision, and displayed facial expressions of sadness when communicating the depth of their concern related to the problem they were solving and how disappointed they would be if not able to pursue their project. We contribute to the passion literature by suggesting that entrepreneurs can productively communicate their passion by displaying highly activated negative facial expressions (e.g., anger and/or fear, but not sadness) and that these expressions exhibit a positive influence on funders provided they are not expressed too frequently.

Another contribution of our work is that we extend the dual threshold model's principles regarding frequency of expression to account for three emotions beyond anger. This resulted in a dual threshold model of basic emotions in funding pitches. We thus answer calls to extend the scope of the dual threshold model of anger beyond intraorganizational interaction (Geddes and Callister, 2007; Geddes et al., 2020). This model suggests two key implications for entrepreneurship. First, our study complements research showing that the benefits of experiencing positive emotions on venture

performance outcomes might reverse beyond a given point (Baron et al., 2011) by showing that this pattern is also mirrored by the influence of entrepreneurs' facial expression of happiness on funding. Simply put, our theorizing and findings demonstrate that expressing positive emotions such as happiness does not lead to universally positive outcomes. Second, we join management research in building theory on why expressing negative emotions can facilitate favorable outcomes (Geddes et al., 2020). Here, we believe it is important to realize that expressing negative emotions does not mean an entrepreneur will have poorer funding prospects. Overall, our study suggests that positive and negative emotional expressions may have both positive or negative influences on important outcomes for entrepreneurs that are determined by the frequency with which they are expressed.

Finally, we show that the frequency of change in entrepreneurs' facial expressions of emotion promotes funding. People display a variety of facial expressions in social interaction and may frequently change from one facial expression to another (Kuppens and Verduyn, 2017). Entrepreneurship scholars, however, have not yet considered how changes in entrepreneurs' facial expressions influence funding. This is a critical oversight because changes in facial expressions encourage observers' engagement by increasing attention (Eastwood et al., 2001; Frischen et al., 2008) and by influencing perceptions of the expressor's authenticity (Cohn and Schmidt, 2003), which is an emerging research area within entrepreneurship (e.g., Cardon et al., 2017). We further extend research on emotional expressiveness, which suggests that a "natural," open style of expression is an important social skill that promotes entrepreneurs' success (Baron and Markman, 2000, 2003; Baron and Tang, 2009) by illustrating that varying emotional expressions in funding pitches leads to increased funding performance. More broadly, our quantitative and qualitative studies together suggest that entrepreneurs' facial expressions of emotion, as well as changes in these expressions, serve as a form of emphatic punctuation, enabling entrepreneurs to convey meaning (e.g., sincerity, concern, determination, passion) and emphasis to certain moments of their pitch.

5.2. Practical implications

Our results offer several practical implications. First, our findings provide insight into the limitations of expressing of positive emotions and the potential benefits of expressing negative

emotions. In addition to expressing happiness, we find that expressing anger and fear can prove beneficial in a funding pitch. However, we caution against highly frequent facial expression of happiness, anger, or fear, as doing so may violate the display rules of the funding pitch setting, hindering funding. Second, our findings suggest that entrepreneurs should not express sadness in their funding pitches, since doing so reduces funding. These implications should be considered in light of the fact that we studied lay funders, providing the most direct implications for those seeking funding via online, reward-based crowdfunding platforms. Our findings also suggest that entrepreneurs should change-up their displayed facial expressions while pitching. Our study suggests such changes serve as emotional punctuation, likely increasing funder attention and aiding perceptions of authenticity. These findings extend previous work, which suggests that nonverbal communication enables entrepreneurs to deliver their pitches in a more persuasive manner (e.g., Clarke et al., 2019). This suggests that entrepreneurs may benefit from being aware of their nonverbal expressions, including their facial expressions, as well as contextual display rules governing what constitutes appropriate emotional expression.

5.3. Limitations and future research directions

Our contributions should also be understood considering the limitations of our work. First, we do not examine the experience of emotion, only its expression. Whereas some entrepreneurs may express an emotion in an authentic manner such that it mirrors their experience of the emotion, others may express emotion as a means of impression management or deliberate deception (Baron, 1989; Baron and Markman, 2003). Strategic displays of emotion have been found to be ineffective, even counterproductive, when detected (Groth et al., 2009; Côte et al., 2013). To understand such possibilities, future research might consider the degree of alignment between experienced and expressed emotion, and the influence of this on the affect and cognition of receivers. Given the interplay between emotion and cognition and calls for joint examination of affective and cognitive processes (e.g., Foo et al., 2014), such efforts are important.

Second, differences in entrepreneurs' social skills (Baron and Markman, 2003; Baron and Tang, 2009) likely shape the effectiveness of their interactions with key stakeholders. For example,

some entrepreneurs lack the expressiveness needed to effectively communicate their emotions and present themselves in a favorable manner, consistent with contextual display rules—holding implications for their ability to influence others (Baron and Markman, 2003; Baron and Tang, 2009). For example, this may influence subjective ratings of project quality. We did not control for the potential influence of perceived quality and call for future research to examine whether subjective ratings of quality change depending on the emotions expressed. Likewise, some people are more adept at social perception and more attuned to others' emotional expressions (e.g., emotional intelligence). As a result, such people may be able to infer others' emotions with greater accuracy, particularly in terms of drawing inferences regarding motivations, intentions, and confidence (Baron and Markman, 2003; Baron and Tang, 2009). Future research should consider how such differences in both the entrepreneur and receiver influence the nature of their interaction.

Third, although facial expressions are a particularly salient channel of communication (Bonanno et al., 2002; Russell et al., 2003), emotions may be communicated through a variety of verbal and nonverbal mechanisms. Nonverbal expressions such as gestures (Clarke et al., 2019), physical touch, eye contact (Burgoon et al., 2016), and vocal expressions (Scherer, 2003) are important in influencing others' perceptions and behavior. Future research could study these different means of expressing emotion in entrepreneurship, their relative importance, and their interaction. Likewise, environmental attributes that may shape what emotions are deemed appropriate to express. For example, differences in the pitch setting or the use of symbols, music (e.g., Keeler and Cortina, in press), lighting, or images can influence communication (e.g., Bitner, 1992).

Finally, whereas we found that the frequency of facial expressions of emotions matters, we urge scholars to examine other characteristics of facial expressions. For example, we did not focus on the intensity of expressions. While intensity may be highly correlated with the evidence scores produced by our facial analysis algorithm (Gutiérrez-García et al., 2019), the intensity of emotional expression may vary over the course of a pitch. Examining intensity could shed further light on the results of our study because dual thresholds likely exist not only for frequency, but also intensity (e.g., Geddes and Callister, 2007). Examining emotional expressions over the course of a pitch, future

research might find common patterns or configurations of expression. Along the same lines, our emphasis on changing from one expression to another is useful for understanding how frequency in changes may shape funding, but our scope does not include the duration elapsed between changes in expressions. Effects of duration between changes in expressions on funding could be studied experimentally, using pre-defined time spans. Finally, basic emotions serve as the building blocks for more complex emotions that future research might consider as influences on funding. These could include shame, guilt, jealousy, and pride, for example (Levenson, 2011; Tracy and Randles, 2011).

6. Conclusion

Emotional expressions are varied, encompassing both the positive and the negative, with facial expressions playing a primary and highly salient role in social interaction. Despite this, the literature studying entrepreneurs' expressions of emotion in funding pitches has focused on positive expressions to the neglect of negative expressions, and has only scratched the surface in considering the frequency with which entrepreneurs change facial expression while seeking to influence others. Our theory and findings suggest that by staying attuned to display rules for the situation and frequently changing their expressions, entrepreneurs are better positioned to influence potential funders, with implications for their interactions with others throughout the entrepreneurial process.

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Table 1

Qualitative analysis of entrepreneurs' facial expressions of emotion in funding pitches: Example quotations.

Expressed Emotion (Aggregate Dimension)	Object of Emotional Expression (2nd-Order Theme)	Example Quotations (Words Communicated Concurrently with Facial Expression of Emotion in Bold)
Happiness	Team	"I actually have two editors. One has been to school for it and **he's like a genius, he really is. Both of them being on this project with me, is amazing**. They're both **so good at editing.**" (Comedy film)
		"**We made a video to introduce ourselves. Here's a little clip from it. Take a look**." (Art education program)
	Passion	"**We rallied the kids** … We created a **design and a plan.** … The **kids were coming to meetings, they were coming every week,** and the kids started having fundraisers **and we raised a good chunk of change**." (Community skate park)
		"I have been doing [the show] **for 7 years** basically on my own. **I've edited the show, produced the show,** and now I'm starting a Kickstarter campaign to produce the show I want to produce and give you guys a quality show. ... [The show] has **long been a passion of mine**." (TV show highlighting different cultures)
		"**I'm excited to build a cocktail program that captures the authentic spirit of Argentina**." (Argentina-inspired bar)
	Value to Funders	"You can choose the **color and the style** and we'll send it to you so that you're amongst the first to **enjoy the safety and security that the wrist guardian offers.**" **(**Smart watch for family security)
		"The [bike] **is really amazing** .... Climbing is very easy now with the [bike. Try speed mode 3, **I'm sure you'll love it." (**Battery-powered bike)
		"Even if you're not a gamer, there are some **really cool ways you can benefit from this technology**. [Our video game controller] is **much easier to press than a cluster of keys on a smartphone or small device**. Our supporters will get a kit that allows them to **experiment with different way to use the [controller].**" **(**Video game controller)
	Humor	"**Hi! My name is [name] and I want you to give me money** (said in a joking manner)." (Short film about dancing)
		"Here in California, we wear sandals and flip flops year-round, and as a result, **many of us have problem feet** [pointing to his foot and laughing]. We've tested all kinds of foot exfoliators and decided there has to be a better solution." (Skin exfoliator)
	Communality	"We need to raise $5,500 and to get there **we need your love.** You'll not only be supporting creativity in the world, but for your donation you will be handsomely rewarded. **So, show us some love and please give us a pledge**. **And tell your friends—all of them—and your neighbors!" (**Stage production)
		"You can grow with us and you can be **part of that voice** in order to establish what we want to do in the future. And **that's to share good stories** … So right now we're at an opportune time for people to be **a part of us and be part of that voice and that mission**." (Theater)
		"**Help me start this production. Help me make this film. I can't do it without you**." (Dance film)
Anger	Problem Salience	"There is economic instability, there is political instability, and there is emotional instability. A handful of people brought thousands of people to their knees. And **that's the pain, that's the hard part to deal with, I think.**" **(**Documentary about citizens working for positive political change in Iceland)
		"The images haunted me for weeks and I couldn't get them out of my head. I'm directing my first project, and it's called silk. It's about a woman who was given away by her family at 12 years old and **she was married off to a man 22 years older**. She was traded for a wad of cash and a goat on a rope. **That was the value of her life.** I want to tell this story. **We have to pay for locations, insurance, craft services, costumes, makeup, food. Literally every dollar counts.**" (Short film about child brides in Yemen)
		"**I need your help in order to procure the steel, the earth, the sod, needed to create more berms,** and to create sun shades that act as water catchment systems." (Public art and agriculture park)
	Determination	"**I would like to introduce the people who have spent the past 2.5 years researching and developing this video game. Some have even moved across the nation to make this game happen.**" (Video game)
		"So why am I doing this? I have long had an interest in what **occurs at the intersection of disciplines**. It's that accidental collaboration, the inspiration that comes from proximity, these are the things that interest me. **Furthermore**, I've been bothered by the lack of adequate tools and adequate space, or even community, to drive the work of creative people. **Even now**, with the rise of maker spaces, tech incubators, and art schools, **something is missing**." (Pop-up workshop and design studio)
	Competence	"I entered the United States Navy, **serving my country in the field of illustration drafting**. My **combination of business and art talents have** given me the adventures of participating in art exhibits throughout this great country." (Nature-inspired art exhibition)

Fear	Need for Resources	"I got this new red white and blue paint and **this one here is about 13 dollars and that is a lot of money for someone with limited means.** I have a friend who **loaned me an easel**, and I've got brushes from **back like almost 20 years ago.**" **(**Art exhibition) "To achieve this goal, I will **need to raise $70,000. That's ambitious** but I believe it can be done with your help." (Pottery business) "**We need your help** ... The show itself is only one aspect of the overall project. Your donations will help cover our **rental fee, postage for all of the catalogs, and our printing costs.**" (Art show and accompanying catalog)
	Hindrances to Progress	"The whole program is a remarkable achievement that has taken many years and input from **so many people to create, both in its crazy logistics—believe me it isn't easy managing 35 theater artists in the mountains of Greece** with no cell phones and very little email access—but also in its creative and artistic design." (Summer theater program in Greece)
	Vision	It has **long been a dream of ours to, at some point,** travel to Scandinavia and meet up with some of the master musicians. (U.S.-based Scandinavian folk music group) We really, really need some support to make this **miracle happen. We're really looking forward to updating everyone on our progress as we go. (**Public art installation) That's why I've chosen to be a performer, not to fight for the spotlight, **but to inspire people through my passion and my music**. Choosing to do this at this time is **incredibly hard, but you have to find the strength inside yourself to continue with your passion, continue with what you love,** and with your purpose. [Opera singer] This is **my dream. It is the most important thing to me** that we do not get cut off halfway through. (Immersive website for young adult fiction novel)
Sadness	Concern	"Right now, we're seeing, in the United States, youth pastors' salary going down. It's something that every youth pastor goes through. But often times, **when they go through it, they feel alone, they feel like maybe they're the only ones that have gone through it, or I don't know, maybe kind of lost with what to do.**" (Book about problems youth pastors face) "**I want to dedicate this fight to anyone who's struggling today, I love you all.** Our Kickstarter project is to build the [program]. This digital aid assists in the spiritual, physical, and mental aspects of recovery." (Online substance abuse recovery community/program) "By having somebody be able to come up and have a conversation about books, about what they like to read, I think it's refreshing to them to be able to talk about something else. To be able to get a copy of a book **that might help them escape their reality if that's what they need.**" **(**Bicycle-powered mobile library for homeless people)
	Disappointment	"**I need to make this movie. It's time. It's something I've wanted to do my entire life, and if I don't do it now, I don't know when I will have the chance again. I wish I wasn't here having to ask you for money. But we need this money to make this movie**, **if we don't get this $7,000, it's not going to happen; we are going to have to shelve the project**." [Film] "We started work on [our game] in 2004 and in 2008 we had a publisher for it, **who sadly wasn't able to follow up on their promise to produce it**." (Board game)
	Supplication	"Any help**, anything that you can do would be so generous if you could just even pass this along to different people we would be so appreciative. Thank you so much for your time** and have a wonderful day." (Film about children with special needs) "As the writer and performer of this work, I know you're investing in me **and I'm sincerely grateful**." (Theater production) "At this point, **we are looking for your help. Simply put, we need assistance to complete the program, and that's where you as an individual or your organization can help to make this show a reality and promote our natural talent.**" (TV series showcasing emerging musicians and celebrating regional musical heritage)

Table 2

Descriptive statistics.

	Variables	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Funds Raised	12688.65	49744.05														
2	Number of Funders	87.18	136.42	0.19													
3	Success	0.58	0.49	0.17	0.34												
4	Category Pledges (ln)	17.02	1.39	0.19	0.12	-0.17											
5	Goal	17023.95	39442.72	0.41	0.09	-0.19	0.24										
6	Duration (ln)	3.43	0.33	0.02	0.09	-0.17	0.00	0.14									
7	Team (0/1)	0.33	0.47	0.09	0.10	0.17	0.06	0.13	0.02								
8	Tangible	0.83	0.37	0.07	0.07	-0.04	0.17	0.01	0.04	-0.12							
9	1st speaker gender	0.28	0.45	-0.06	0.00	0.09	-0.07	-0.05	0.03	0.01	-0.01						
10	1st speaker age	3.06	0.76	0.14	0.11	0.02	-0.05	0.13	0.02	0.07	0.01	-0.04					
11	1st speaker race	0.25	0.66	-0.04	-0.06	-0.05	0.08	0.03	-0.02	0.02	-0.04	-0.01	-0.13				
12	1st speaker attractiveness	2.97	0.78	-0.04	0.05	0.06	0.02	-0.08	0.03	-0.05	0.02	0.03	-0.06	-0.05			
13	Pct. Women on Team	0.24	0.24	0.00	-0.01	0.04	-0.04	0.01	0.04	-0.02	0.03	0.05	0.01	0.04	0.09		
14	Avg. Age	3.06	0.67	0.07	0.04	-0.06	0.06	0.07	0.08	-0.06	-0.02	0.01	0.06	-0.02	-0.13	-0.10	
15	Pct. Black/Latino on Team	0.05	0.12	-0.04	-0.10	-0.14	-0.03	0.04	0.06	0.11	-0.05	-0.05	0.01	0.01	-0.03	0.01	-0.12
16	Avg. Attractiveness	2.96	0.80	0.01	0.08	0.08	0.02	-0.01	-0.04	0.01	0.06	0.03	0.00	-0.03	0.50	0.19	-0.24
17	Speaker Face Size	9.28	0.77	-0.01	-0.08	-0.07	-0.07	-0.04	-0.05	-0.12	-0.06	0.00	-0.05	-0.02	-0.08	-0.02	-0.07
18	Facial Yaw	-0.82	4.86	0.03	0.00	-0.08	0.02	0.04	0.07	-0.01	0.00	0.04	0.02	-0.06	0.00	-0.10	0.07
19	Facial roll	0.29	3.95	-0.02	-0.05	0.07	-0.04	-0.07	-0.07	0.07	-0.01	0.05	0.04	0.09	-0.02	-0.07	0.00
20	Video Length	1461.59	1319.26	-0.08	-0.12	-0.10	-0.06	0.06	0.06	0.14	-0.06	-0.03	-0.03	0.10	0.01	-0.03	0.02
21	Word Length	5.88	0.71	0.06	0.06	0.01	0.05	0.12	0.09	0.22	-0.06	0.03	0.05	0.07	-0.03	-0.06	0.08
22	Happiness	0.12	0.13	0.04	0.04	0.07	0.00	0.05	-0.03	0.05	0.01	-0.02	-0.01	0.03	0.05	0.36	-0.13
23	Anger	0.02	0.05	-0.02	0.01	0.03	0.08	0.04	0.01	-0.01	0.09	0.06	-0.03	0.10	-0.01	0.01	0.03
24	Sadness	0.01	0.04	0.01	-0.02	-0.06	-0.03	0.03	0.01	-0.03	0.02	0.05	0.01	-0.03	-0.04	-0.08	0.09
25	Fear	0.02	0.05	-0.02	0.01	-0.03	-0.09	0.00	0.02	-0.06	-0.05	0.00	0.00	0.06	0.02	0.05	0.05
26	Changes in Expression	4.37	1.27	-0.01	-0.05	0.02	-0.06	0.03	0.04	0.30	-0.07	-0.02	0.03	0.07	0.01	0.12	0.05

N = 489; correlations with an absolute value exceeding 0.08 are significant at $p < .05$

Table 2

Descriptive Statistics (continued).

	Variables	15	16	17	18	19	20	21	22	23	24	25
16	Avg. Attractiveness	0.05										
17	Speaker Face Size	0.15	-0.07									
18	Facial Yaw	0.04	-0.04	0.05								
19	Facial roll	-0.03	-0.05	-0.02	-0.17							
20	Video Length	0.07	-0.07	-0.02	0.00	0.03						
21	Word Length	0.00	-0.05	-0.04	-0.01	0.01	0.56					
22	Happiness	0.07	0.18	-0.04	-0.03	-0.06	-0.03	-0.05				
23	Anger	-0.06	-0.03	-0.10	-0.01	-0.01	-0.11	-0.04	-0.15			
24	Sadness	0.01	-0.05	0.11	-0.01	0.06	0.00	0.01	-0.15	0.00		
25	Fear	-0.02	-0.05	0.05	-0.08	0.05	0.03	-0.02	-0.07	-0.06	0.08	
26	Changes in Expression	0.16	0.04	0.03	0.00	0.04	0.55	0.37	0.24	-0.07	0.19	0.15

N = 489; correlations with an absolute value exceeding 0.08 are significant at $p < .05$

Table 3

The influence of facial expressions of emotion on total funds raised.

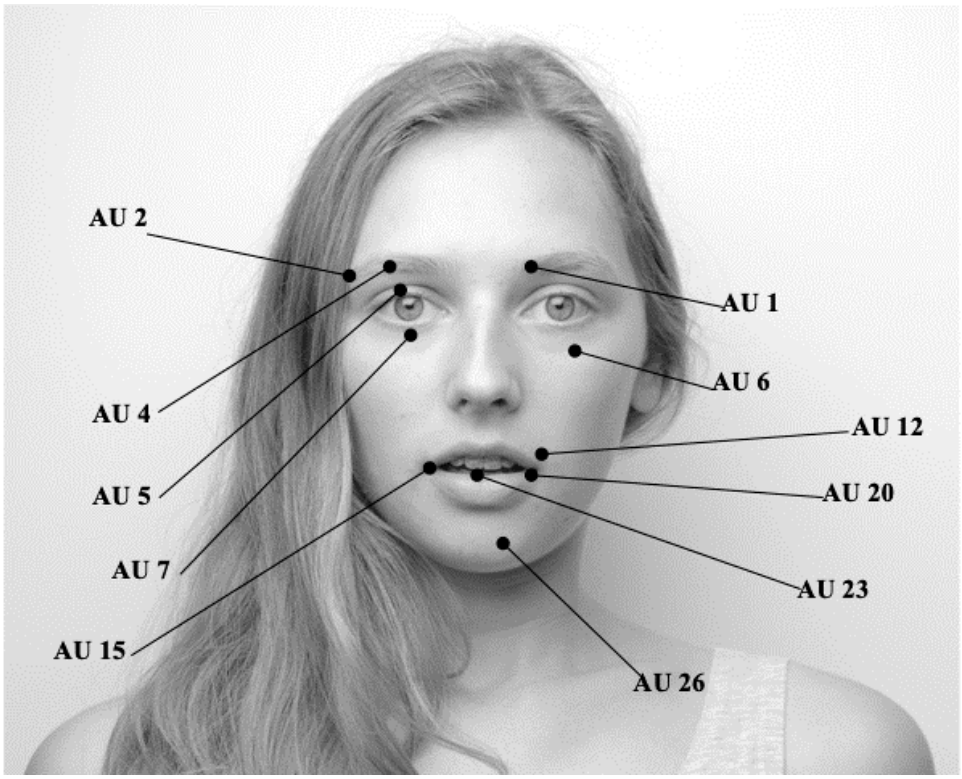
	Controls Only			Direct Effects			Emotions			Changes in Expression		
Variable	**Coeff.**	**SE**	**p-value**	**Coeff.**	**SE**	**p-value**	**Coeff.**	**SE**	**p-value**	**Coeff.**	**SE**	**p-value**
Category Pledges (ln)	-0.02	0.03	0.543	0.00	0.02	0.998	-0.01	0.02	0.508	-0.01	0.03	0.725
Goal	0.00	0.00	0.000	0.00	0.00	0.000	0.00	0.00	0.000	0.00	0.00	0.000
Duration (ln)	0.24	0.04	0.000	0.29	0.03	0.000	0.26	0.01	0.000	0.25	0.07	0.000
Team (0/1)	0.57	0.13	0.000	0.59	0.11	0.000	0.48	0.08	0.000	0.50	0.17	0.002
Tangible	0.14	0.15	0.335	0.18	0.18	0.320	0.20	0.21	0.340	0.13	0.12	0.304
1st speaker gender	0.01	0.19	0.954	0.07	0.16	0.656	0.11	0.10	0.292	0.02	0.17	0.923
1st speaker age	0.18	0.19	0.346	0.15	0.20	0.439	0.13	0.14	0.341	0.19	0.18	0.309
1st speaker race	-0.05	0.04	0.232	-0.08	0.06	0.197	-0.11	0.06	0.082	-0.06	0.04	0.133
1st speaker attractiveness	0.06	0.06	0.368	0.07	0.09	0.398	0.01	0.11	0.921	0.04	0.06	0.472
Pct. Women on Team	0.17	0.26	0.529	-0.31	0.08	0.000	-0.43	0.07	0.000	0.10	0.31	0.758
Avg. Age	0.23	0.01	0.000	0.28	0.04	0.000	0.27	0.03	0.000	0.19	0.01	0.000
Pct. of Black/Latino	-0.80	0.03	0.000	-0.77	0.13	0.000	-0.92	0.22	0.000	-0.94	0.11	0.000
Avg. Attractiveness	0.27	0.16	0.095	0.26	0.16	0.112	0.28	0.17	0.106	0.26	0.17	0.116
Speaker Face Size	-0.16	0.00	0.000	-0.17	0.01	0.000	-0.19	0.02	0.000	-0.18	0.03	0.000
Facial Yaw	-0.01	0.01	0.142	-0.01	0.00	0.003	-0.01	0.00	0.002	-0.01	0.00	0.075
Facial roll	0.01	0.03	0.770	0.01	0.02	0.598	0.01	0.02	0.640	0.01	0.03	0.801
Video Length	0.00	0.00	0.000	0.00	0.00	0.000	0.00	0.00	0.000	0.00	0.00	0.000
Word Length	0.74	0.02	0.000	0.74	0.13	0.000	0.66	0.04	0.000	0.67	0.03	0.000
Happiness				2.34	0.77	0.002	7.57	2.88	0.009			
Happiness Sq.							-12.24	4.91	0.013			
Anger				1.52	2.25	0.500	5.25	3.37	0.120			
Anger Sq.							-10.02	4.49	0.026			
Sadness				-2.01	0.71	0.005	-2.39	1.10	0.030			
Sadness Sq.							0.35	7.34	0.961			
Fear				2.50	0.33	0.000	4.61	0.39	0.000			
Fear Sq.							-5.49	0.12	0.000			
Changes in Expression										0.16	0.05	0.000
Constant	3.60	0.05	0.000	2.75	0.63	0.000	3.49	0.53	0.000	3.56	0.13	0.000
Category Variance	0.33	0.13		0.30	0.16		0.27	0.14		0.32	0.13	
Log pseudolikelihood	-4651.21			-4642.69			-4633.21			-4648.29		

Table 4
The influence of emotional expressions on the number of backers.

	Controls Only			Direct Effects			Emotions			Changes in Expression		
Variable	**Coeff.**	**SE**	**p-value**	**Coeff.**	**SE**	**p-value**	**Coeff.**	**SE**	**p-value**	**Coeff.**	**SE**	**p-value**
Category Pledges (ln)	-0.06	0.03	0.049	-0.05	0.02	0.003	-0.05	0.02	0.032	-0.06	0.03	0.052
Goal	0.00	0.00	0.977	0.00	0.00	0.865	0.00	0.00	0.946	0.00	0.00	0.976
Duration (ln)	0.32	0.18	0.087	0.31	0.13	0.019	0.28	0.13	0.040	0.31	0.16	0.058
Team (0/1)	0.60	0.03	0.000	0.60	0.03	0.000	0.51	0.01	0.000	0.57	0.01	0.000
Tangible	0.14	0.13	0.258	0.15	0.14	0.296	0.15	0.15	0.339	0.14	0.13	0.250
1st speaker gender	0.05	0.04	0.250	0.07	0.06	0.255	0.08	0.09	0.369	0.06	0.05	0.250
1st speaker age	0.14	0.17	0.414	0.13	0.18	0.482	0.12	0.16	0.454	0.14	0.16	0.402
1st speaker race	-0.06	0.07	0.369	-0.08	0.05	0.162	-0.09	0.05	0.065	-0.07	0.07	0.328
1st speaker attractiveness	0.05	0.07	0.507	0.06	0.08	0.439	0.00	0.09	0.965	0.05	0.08	0.555
Pct. Women on Team	-0.03	0.03	0.298	-0.28	0.16	0.078	-0.33	0.20	0.094	-0.06	0.07	0.396
Avg. Age	0.16	0.09	0.063	0.20	0.10	0.047	0.20	0.11	0.052	0.16	0.09	0.069
Pct. of Black/Latino	-1.42	0.44	0.001	-1.35	0.51	0.008	-1.43	0.48	0.003	-1.47	0.44	0.001
Avg. Attractiveness	0.19	0.11	0.080	0.19	0.11	0.077	0.21	0.12	0.083	0.19	0.12	0.103
Speaker Face Size	-0.07	0.02	0.006	-0.07	0.01	0.000	-0.10	0.01	0.000	-0.07	0.02	0.000
Facial Yaw	-0.01	0.01	0.450	-0.01	0.01	0.352	-0.01	0.01	0.289	-0.01	0.01	0.390
Facial roll	-0.01	0.01	0.503	0.00	0.01	0.479	0.00	0.01	0.658	-0.01	0.01	0.464
Video Length	0.00	0.00	0.000	0.00	0.00	0.000	0.00	0.00	0.000	0.00	0.00	0.000
Word Length	0.54	0.03	0.000	0.56	0.03	0.000	0.50	0.00	0.000	0.52	0.01	0.000
Happiness				1.29	0.81	0.110	4.54	0.81	0.000			
Happiness Sq.							-7.45	0.14	0.000			
Anger				1.35	2.17	0.534	4.26	3.39	0.209			
Anger Sq.							-7.29	3.66	0.047			
Sadness				-1.30	0.48	0.006	-4.69	3.37	0.164			
Sadness Sq.							10.08	12.21	0.409			
Fear				2.05	0.67	0.002	4.17	0.82	0.000			
Fear Sq.							-5.01	0.99	0.000			
Changes in Expression								0.33		0.06	0.02	0.001
Constant	0.50	0.76	0.509	-0.02	0.44	0.971	0.72	0.08	0.031	0.45	0.68	0.509
Category Variance	0.17	0.04		0.19	0.06		0.18	0.02		0.18	0.04	
Log pseudolikelihood	-2560.81			-2555.37			-2548.18			-2560.1348		

Table 5
The influence of emotions on meeting the fundraising goal.

	Controls Only			Direct Effects			Emotions			Changes in Expression		
Variable	**Coeff.**	**SE**	**p-value**	**Coeff.**	**SE**	**p-value**	**Coeff.**	**SE**	**p-value**	**Coeff.**	**SE**	**p-value**
Category Pledges (ln)	-0.24	0.03	0.000	-0.25	0.03	0.000	-0.26	0.05	0.000	-0.24	0.03	0.000
Goal	0.00	0.00	0.466	0.00	0.00	0.460	0.00	0.00	0.474	0.00	0.00	0.474
Duration (ln)	-1.08	0.58	0.061	-1.07	0.58	0.065	-1.11	0.57	0.049	-1.07	0.59	0.068
Team (0/1)	1.10	0.19	0.000	1.08	0.17	0.000	0.95	0.13	0.000	1.03	0.17	0.000
Tangible	0.06	0.10	0.517	0.06	0.13	0.656	0.11	0.14	0.432	0.06	0.11	0.590
1st speaker gender	0.30	0.09	0.001	0.31	0.09	0.000	0.37	0.08	0.000	0.31	0.09	0.001
1st speaker age	0.09	0.10	0.373	0.10	0.11	0.362	0.08	0.05	0.128	0.09	0.10	0.366
1st speaker race	-0.11	0.22	0.620	-0.13	0.20	0.536	-0.16	0.19	0.409	-0.11	0.21	0.596
1st speaker attractiveness	0.09	0.04	0.018	0.10	0.02	0.000	0.03	0.01	0.017	0.10	0.04	0.008
Pct. Women on Team	0.23	0.05	0.000	0.00	0.01	0.772	-0.19	0.01	0.000	0.14	0.11	0.183
Avg. Age	-0.06	0.13	0.631	-0.03	0.12	0.789	-0.04	0.11	0.689	-0.08	0.12	0.497
Pct. of Black/Latino	-2.61	0.00	0.000	-2.69	0.09	0.000	-2.94	0.11	0.000	-2.72	0.01	0.000
Avg. Attractiveness	0.14	0.16	0.365	0.12	0.17	0.463	0.13	0.17	0.445	0.13	0.15	0.387
Speaker Face Size	-0.14	0.01	0.000	-0.11	0.04	0.009	-0.16	0.02	0.000	-0.15	0.01	0.000
Facial Yaw	-0.02	0.01	0.000	-0.02	0.00	0.000	-0.03	0.00	0.000	-0.02	0.01	0.000
Facial roll	0.02	0.03	0.505	0.02	0.03	0.358	0.02	0.03	0.464	0.02	0.03	0.494
Video Length	0.00	0.00	0.000	0.00	0.00	0.000	0.00	0.00	0.000	0.00	0.00	0.000
Word Length	0.35	0.05	0.000	0.34	0.08	0.000	0.32	0.08	0.000	0.35	0.07	0.000
Happiness				1.27	0.01	0.000	7.30	0.40	0.000			
Happiness Sq.							-13.21	0.73	0.000			
Anger				2.05	4.40	0.641	2.92	7.77	0.707			
Anger Sq.							-0.89	9.25	0.924			
Sadness				-2.36	0.89	0.008	-3.00	2.83	0.289			
Sadness Sq.							2.04	10.63	0.848			
Fear				-0.52	1.20	0.668	4.83	0.11	0.000			
Fear Sq.							-13.57	2.01	0.000			
Changes in Expression								2.32		0.12	0.05	0.010
Constant	6.82	2.34	0.004	6.55	2.48	0.008	7.25	0.05	0.002	6.56	2.39	0.006
Category Variance	0.00	0.00		0.00	0.00		0.00	0.00		0.00	0.00	
Log pseudolikelihood	-283.69			-281.54			-275.59		0.000	-282.99		



AU	Description	Facial Muscle
1	Inner brow raiser	*Frontalis, pars medialis*
2	Outer Brow Raiser (unilateral, right side)	*Frontalis, pars lateralis*
4	Brow Lowerer	*Depressor Glabellae, Depressor Supercilli, Currugator*
5	Upper Lid Raiser	*Levator palpebrae superioris*
6	Cheek Raiser	*Orbicularis oculi, pars orbitalis*
7	Lid Tightener	*Orbicularis oculi, pars palpebralis*
12	Lip Corner Puller	*Zygomatic Major*
15	Lip Corner Depressor	*Depressor anguli oris (Triangularis)*
20	Lip stretcher	*Risorius*
23	Lip Tightener	*Orbicularis oris*
26	Jaw Drop	*Masetter; Temporal and Internal Pterygoid* relaxed

Fig. 1. Action units (AU; adapted from the Facial Action Coding System; Ekman, Friesen, and Hager, 2002).
Note: The measurement of each basic emotion is comprised of the following AUs: happiness (AU6 + AU12), anger (AU4 + AU5 + AU7 + AU23), fear (AU1 + AU2 + AU4 + AU5 + AU7 + AU20 + AU26), and sadness (AU1 + AU4 + AU15).

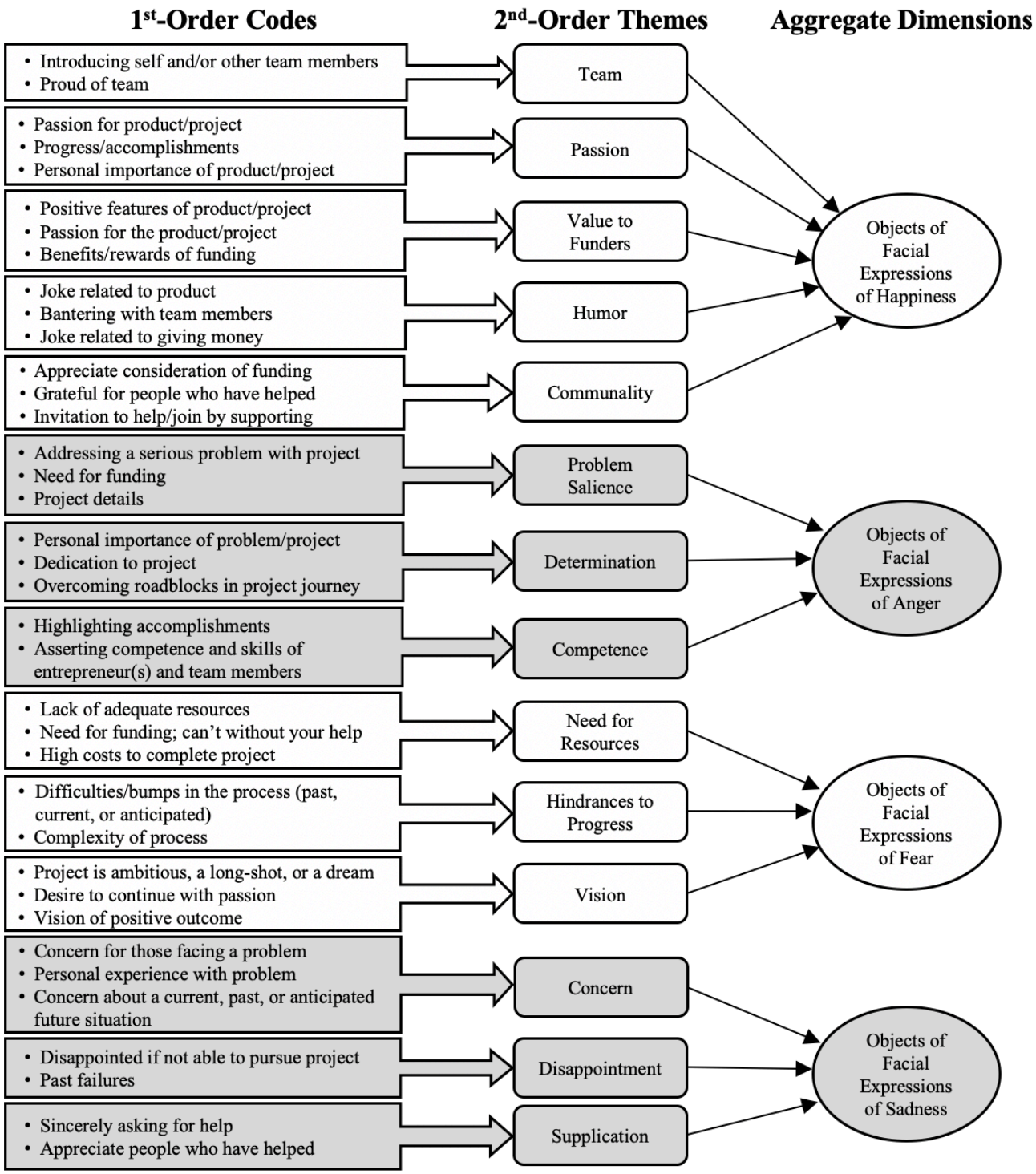


Fig. 2. Qualitative study of entrepreneurs' facial expressions of emotion in funding pitches: Data structure.

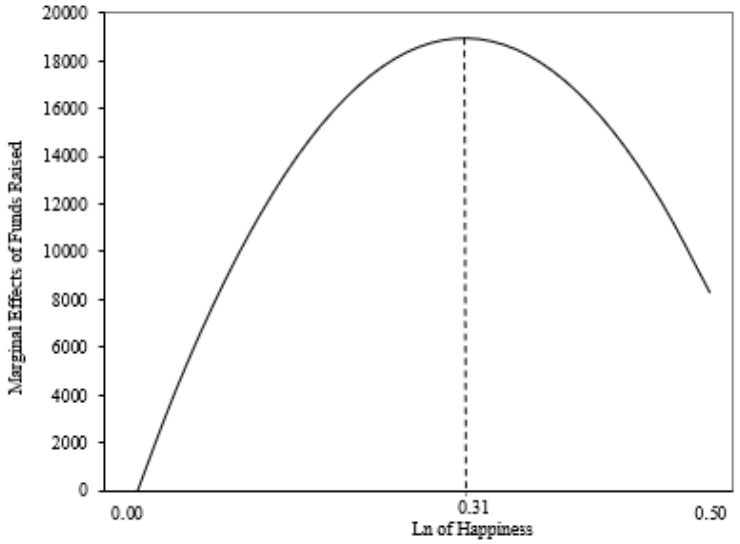


Fig. 3A. Happiness (ln) on funds raised.

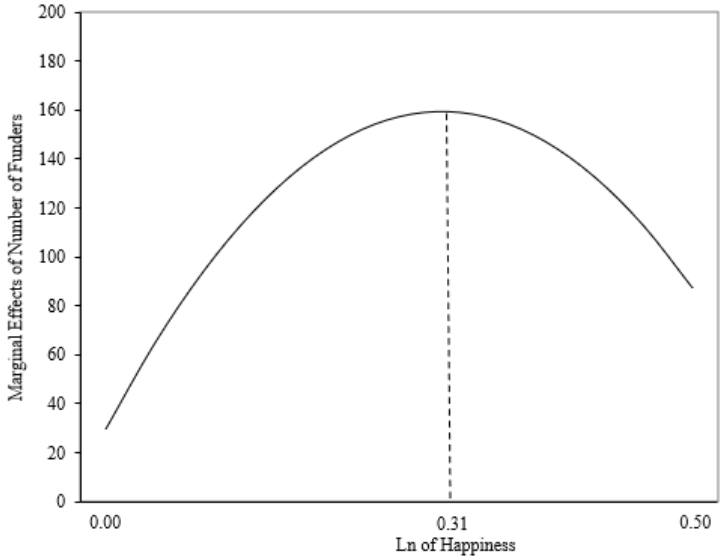


Fig. 3B. Happiness (ln) on number of funders.

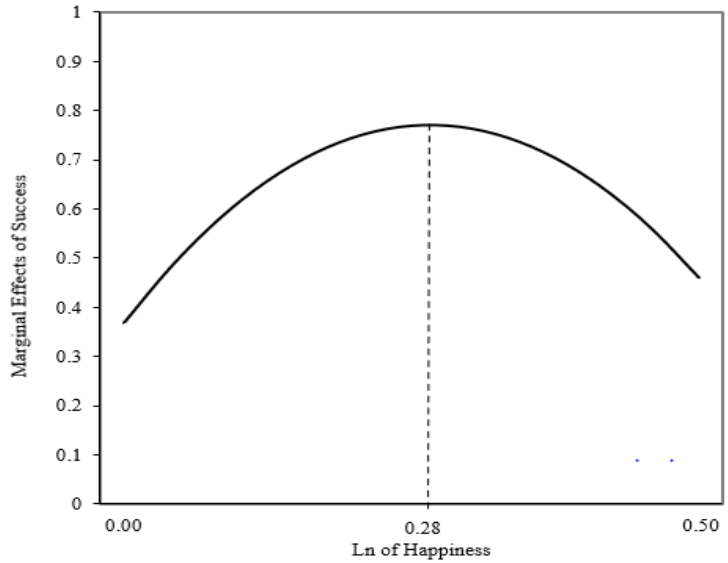


Fig. 3C. Happiness (ln) on success in meeting goal.

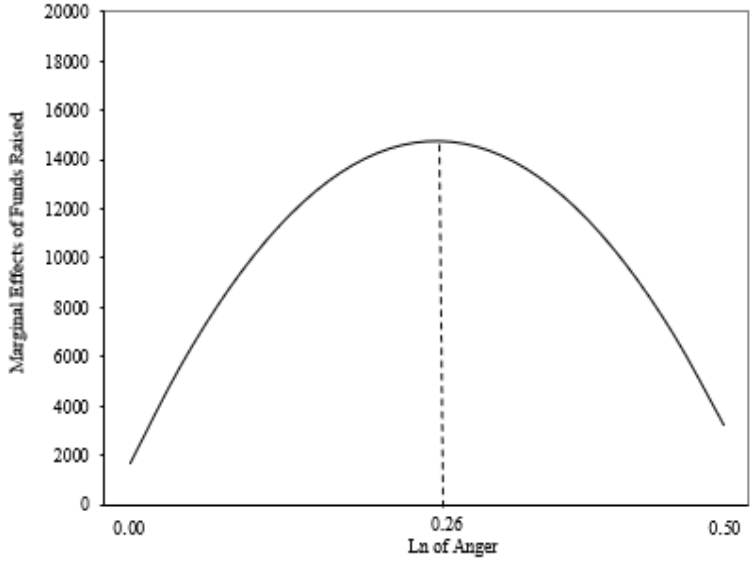


Fig. 4A. Anger (ln) on funds raised.

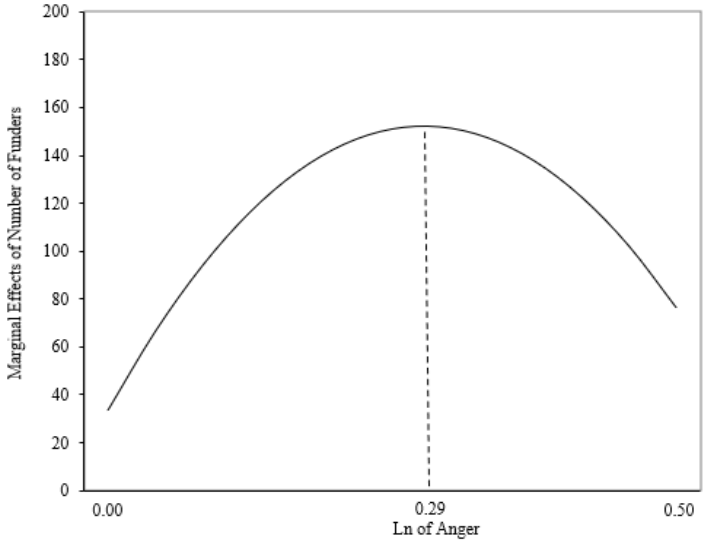


Fig. 4B. Anger (ln) on number of funders.

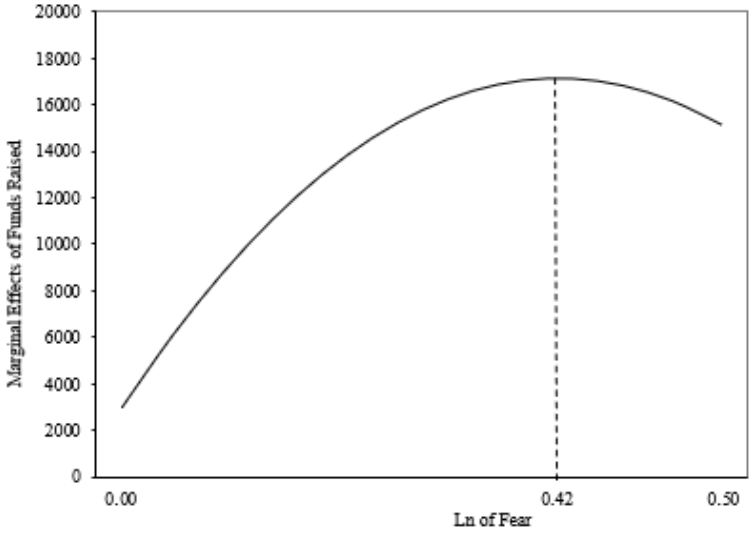


Fig. 5A. Fear (ln) on funds raised.

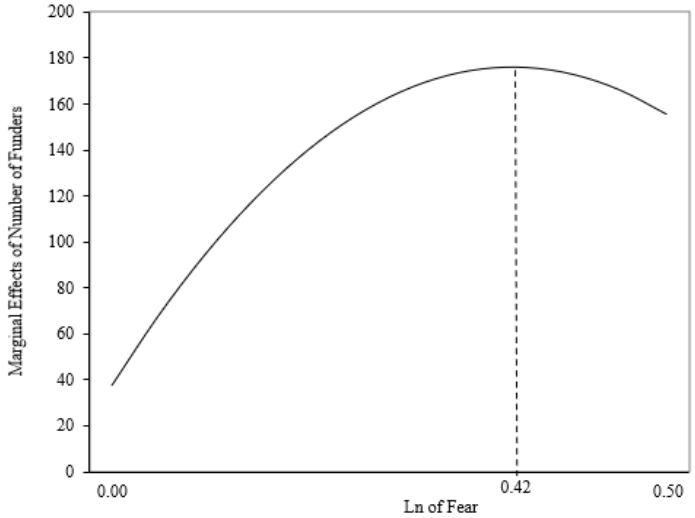


Fig. 5B. Fear (ln) on number of funders.

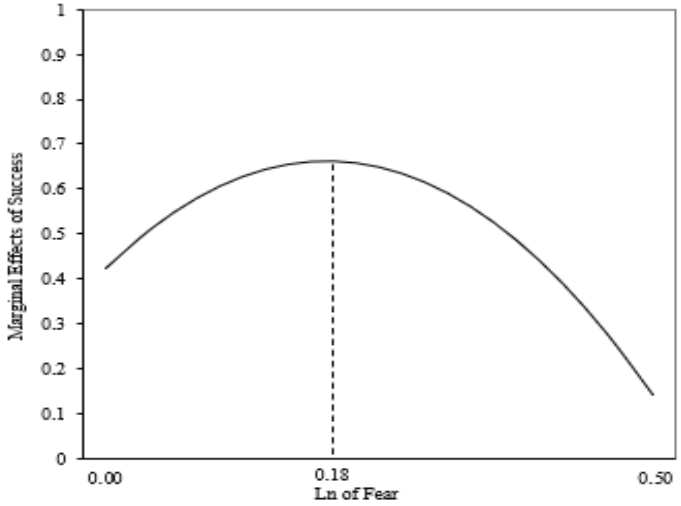


Fig. 5C. Fear (ln) on success in meeting goal.