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Linking Anxiety to Passion: Emotion Regulation and Entrepreneurs' Pitch Performance

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ABSTRACT
We investigate a strategy entrepreneurs can use to manage their emotions prior to pitching: *linking anxiety to passion*. We theorize that internally acknowledging anxiety and interpreting it as a reflection of one's passion for the venture can make passionate feelings salient, facilitate expressions of passion during pitches, and increase judges' evaluations of pitch performance. A field study and a randomized experiment support the theory, offering insights for how entrepreneurs can mentally reframe their seemingly detrimental emotional experiences for beneficial outcomes. More broadly, this work demonstrates the utility of fostering beneficial emotions rather than just alleviating negative ones

Executive summary

Securing financial support from investors is critical to the survival and growth of new ventures. Not being able to raise funds could break the idea that one has been working on for years. Therefore, it is not surprising that pitching to investors often provokes anxiety. Entrepreneurship research has examined emotion regulation general tendencies over time and across situations (e.g., De Cock et al., 2020) and specific reactions to project failures (e.g., Patzelt et al., 2021). However, little is known about how entrepreneurs cope with anxiety associated with impending events, including funding pitches. This gap is important for research because psychological studies of emotion regulation often involve stimuli of little personal relevance and events that have occurred in the past (Brans et al., 2013; Ford et al., 2019; Sheppes and Meiran, 2008), which contrasts sharply with the high personal relevance of entrepreneurial pitches. The gap is also important for practice because anxiety usually has negative effects on people's judgments of presentations (Mulac and Wiemann, 2009). It would be unfortunate for both investors and entrepreneurs if great ideas went unfunded just because of mismanaged anxiety.

Bridging prior research on emotion regulation with important contextual features of entrepreneurial pitches, we propose and test a new way entrepreneurs can cope with pitch anxiety and improve pitch performance: *linking anxiety to passion*, or reframing their anxiety as a reflection of their passion for their venture. Research on the process model of emotion regulation indicates that cognitively reappraising emotional events—reframing undesirable events from a new perspective—can effectively change one's emotional responses to situations (Gross, 1998, 2015). Entrepreneurs often have psychological attachment to their ventures, seeing them as an important part of themselves (Cardon et al., 2005). Therefore, we posit that entrepreneurs' anxiety about their impending pitch reflects (at least in part) their love of their venture and desire to see it appreciated and funded by investors. Leveraging this insight, our linking anxiety to passion strategy prescribes that entrepreneurs could cope with pitch anxiety by recognizing that anxiety is partly a reflection of their love and dedication to their venture. This reappraisal of the situation should make passionate feelings salient in the moment (Cardon et al., 2009). Linking anxiety to passion is well suited for entrepreneurial pitches because prior work shows that entrepreneurs who display more passion are often more successful in fundraising (e.g., Davis et al., 2017).

Three studies support our theory. Study 1 examines how entrepreneurs naturally cope with their anxiety, finding that entrepreneurs most often attempt to distract themselves to cope with anxiety in the absence of any instructions or intervention. Studies 2 and 3 test the effectiveness of linking anxiety to passion compared to alternative well-established strategies from the process model of emotion regulation, including distraction. Study 2, a field survey of new venture competitions, finds that entrepreneurs who mentally reframe their anxiety as being linked to passion were perceived as more passionate during pitches, which in turn enhances judges' evaluations of

the ventures' funding potential; other strategies from the emotion regulation literature (distraction, suppression, and detached reappraisal) did not significantly influence perceived emotions or funding potential evaluations. Study 3, a laboratory experiment with participants randomly assigned to use either linking anxiety to passion or distraction finds further support for the causal direction of the effects; participants who take a few moments to manage anxiety by using the linking anxiety to passion strategy experience more passionate feelings, display more passion, are rated as more persuasive, and receive better funding recommendations than those who use distraction.

Our research contributes to entrepreneurship research on emotions by demonstrating the impact of emotion regulation strategies on pitch performance. It also contributes to emotion regulation research more broadly by showing that acknowledging (rather than denying) a negative emotion and linking it to positive experiences can effectively alter emotional experience. In terms of practice, our strategy helps entrepreneurs cope with their emotions in the stressful and high-stakes moments of funding pitches, adding to the toolkits entrepreneurs can directly apply to improve pitch performance.

1. Introduction

Securing financial support from investors is often critical to a new venture's survival and growth (Cooper et al., 1994). An inability to raise funds could break the idea that entrepreneurs have been working on for years (Cacciotti et al., 2016; Sergent et al., 2021). Given that uncertainty and lack of control in a situation generate anxiety (Smith & Ellsworth, 1985; Todd et al., 2015), it is understandable that entrepreneurs often experience anxiety before pitching their venture to potential investors. As one entrepreneur explained, "I think there is a lot of anxiety of just trying to get the funds necessary to launch the initiative" (Cacciotti et al., 2016, p. 132).

Although many entrepreneurs experience pitch anxiety, little, if any, entrepreneurship theory or research considers how entrepreneurs can overcome pitch anxiety. Entrepreneurship research on emotional coping addresses responses to extreme past events (e.g., business failures; He et al., 2018; Shepherd, 2003), but it does not address coping with current anxiety-provoking events. Research on anxiety suggests that feeling anxious during a presentation decreases audience members' judgments of the presenter's confidence and persuasiveness (e.g., Mulac & Wiemann, 2009). Psychological studies of emotion regulation often involve emotion-induction stimuli of little personal relevance and events that have occurred in the past (Brans et al., 2013; Ford et al., 2019; Sheppes & Meiran, 2008), which contrasts sharply with the high personal relevance of entrepreneurial pitches. In sum, despite the importance of pitching and the prevalence of pitch anxiety, the entrepreneurship literature lacks a theory of the potential fit between features of different emotion coping strategies available to entrepreneurs and important contextual features of pitching.

The current research is the first to offer a theory-driven, context-specific recommendation for how entrepreneurs can deal with pitch anxiety. The process model of emotion regulation indicates that cognitive reappraisal—consciously applying a different perspective to mentally reframe the meaning of a situation—can help people manage their emotions in challenging situations (Gross, 1998, 2015). However, existing research on cognitive reappraisal examines a narrow band of contexts, and high-intensity stressors may be especially difficult to overcome (Ford & Troy, 2019). We address this issue by considering key contextual elements of entrepreneurial pitches. Based on the insight that pitch anxiety and passion are both underpinned by the personal significance of the event, we derive a reappraisal strategy well-suited for entrepreneurial pitches: *linking anxiety to passion*. In short, we theorize that if entrepreneurs reinterpret their pitch anxiety as a reflection of their passion for their venture, they can leverage the experience of anxiety to make passionate feelings salient in the moment, which in turn should help them to express more passion while pitching. Because entrepreneurial passion is viewed favorably by investors and leads to better funding outcomes (e.g., Hsu et al., 2014; Huang, 2018; Murnieks et al., 2016), linking anxiety to passion should improve investors' evaluations of the pitch.

We test the effectiveness of linking anxiety to passion relative to alternative strategies using a mixed method approach with studies that complement each other in terms of ecological and internal validity (Hsu et al., 2017). We begin with a descriptive study that explores how entrepreneurs tend to manage anxiety before pitches without any regulation instructions (Study 1). We then report a field study of entrepreneurs (Study 2) and a randomized experiment with business students (Study 3) that tested the feasibility and effectiveness of linking anxiety to passion. Together, the results indicate that few entrepreneurs spontaneously link anxiety to passion, but a simple intervention can improve pitch performance.

The current research makes three main contributions. First, we contribute to entrepreneurship research on emotion regulation by bridging insights from the process model of emotion regulation and the unique context of entrepreneurial pitches. We illuminate differences in the mechanisms that underpin several emotion coping strategies and evaluate the consequences of these mechanisms for pitch performance. Prior research on

entrepreneurship either does not differentiate among emotion regulation strategies (Patzelt & Shepherd, 2011) or examines emotion regulation tendencies over time and across situations (De Cock et al., 2020). Differentiating among strategies and their applicability to specific emotion-eliciting situations is important because research indicates that a given emotion regulation strategy may either help or hurt depending on the situation (Troy et al., 2013). Thus, from a descriptive standpoint, our research contributes to our understanding of how entrepreneurs cope with pitch anxiety and why emotion regulation strategies differ in their effectiveness at boosting pitch performance. From a normative standpoint, our results indicate that entrepreneurs can benefit more from linking anxiety to passion than from common emotion regulation strategies.

Second, our findings challenge the consensus about the importance of alleviating the intensity of the emotional rollercoaster inherent to the entrepreneurial journey (cf., Warnick et al., 2021). Research on emotion regulation in general and entrepreneurial emotion regulation in particular focuses on how to mitigate the emotional peaks and valleys by reducing stress (Uy et al., 2013), controlling extreme emotions (De Cock et al., 2020), and recovering from grief (Shepherd, 2003). A central premise of linking anxiety to passion is that it may be more feasible and effective to acknowledge and leverage those intense experiences than attempt to deny them. Thus, the current research breaks new ground by showing that people do not have to inhibit their emotions or the appraisals that accompany them for emotion regulation to be successful; acknowledging the emotional experience can facilitate performance.

Third, we contribute to research on entrepreneurial passion by identifying how entrepreneurs can make passionate feelings salient at a specific point in time and leverage them for success during pitches. Theories of entrepreneurial passion maintain that passion is consciously accessible but not always salient (e.g., Cardon et al., 2009). Some research examines how entrepreneurs develop passion about their ventures over time (Gielnik et al., 2015; Lex et al., 2022), but little is known about how entrepreneurs' passionate feelings ebb and flow from moment to moment and across situations (cf. Bredehorst et al., 2024). Our work identifies how entrepreneurs can consciously associate anxiety and passion to boost passionate feelings in the moment and improve their pitch performance. In doing so, the current research also enriches the emotion regulation literature by identifying a way to increase the intensity of a desirable emotion in high-stakes anxiety-provoking situations. Research in this area primarily focuses on *downregulation* of emotions, that is, ways to reduce the intensity of undesirable emotions (McRae & Mauss, 2016). In contrast, the positive effects of linking anxiety to passion on passionate feelings is an example of *upregulation* of emotions, or increasing the intensity of emotions, which has received less scholarly attention.

2. Theory and Hypotheses

2.1. The Experience of Anxiety

Anxiety is an emotional state of distress people experience when there is a potential for undesirable outcomes and the means to achieve an important goal are unclear (Brooks & Schweitzer, 2011). The experience of anxiety includes a sense of uncertainty, lack of control, self-doubt, and worry about negative outcomes (Smith & Ellsworth, 1985). It also is associated with heightened alertness and a tendency to withdraw from the threatening situation (Frijda et al., 1989). Physiologically, anxiety is activating, causing increased heart rate, muscle tension, and trembling of the body or voice (Stein et al., 1996).

Many people feel anxious about public speaking (National Social Anxiety Center, 2016). Experiencing anxiety immediately prior to or during a presentation can decrease performance because it negatively affects cognition and communication. For example, anxiety spurs intrusive thoughts (e.g., task-irrelevant, self-deprecating, self-preoccupying) that divert cognitive resources from the task (e.g., Eysenck, 1979). Anxiety affects communication by producing verbal dysfluencies or disruptions in speech (e.g., pausing, stuttering, repeating, stumbling over words; Schlenker & Leary, 1982). Anxiety also reduces eye contact, decreases expressiveness through facial and bodily movements, and increases fidgeting (Bogels et al., 2002). These verbal and nonverbal cues lower observers' judgements of the speakers' confidence and persuasiveness (Mulac & Wiemann, 2009). Moreover, awareness that anxiety can be debilitating to performance can cause people to worry about worrying, creating a feedback loop that erodes confidence and exacerbates anxiety (McGonigal, 2015).

2.2. Coping with Anxiety

Emotion regulation is the process through which people monitor and control emotional experiences or expressions (Gross, 1998). Little research examines how entrepreneurs can effectively regulate pitch anxiety, and

existing evidence suggests that the strategies people use spontaneously to cope with anxiety are not always effective. For example, people often attempt to fake calmness or positive emotions, but this approach can backfire because observers react negatively to a perceived lack of sincerity in emotions (Jiang et al., 2022; Oo & Allison, 2022).

We derive a new strategy for coping with pitch anxiety from the process model of emotion regulation, the most influential and comprehensive psychological theory of the mechanisms people use to manage their emotions (Gross, 2013, 2015). Although emotions can be either downregulated (i.e., mitigated) or upregulated (i.e., enhanced), research overwhelmingly examines different ways people try to downregulate negative emotions; much less research examines upregulation of positive emotions (McRae, 2016). According to the process model, emotion regulation strategies can involve modifying attention (i.e., distraction), modifying interpretation of the stimuli (i.e., cognitive reappraisal), or modifying the outward expressions (i.e., suppression; Gross, 2013, 2015). For example, entrepreneurs using *distraction* may turn their attention away from anxiety and focus on the pitch deck. Those using *reappraisal* may attempt to think about the anxiety-provoking pitch from a neutral or positive perspective. Those using *suppression* may try to inhibit verbal or nonverbal cues that others use to interpret their emotional state and fake calmness.

Reappraisal tends to be more effective than distraction or suppression (Webb et al., 2012). Reappraisal strategies work because emotions emerge from subjective interpretations (i.e., appraisals) of the meaning of events or stimuli for oneself (Frijda et al, 1989; Scherer, 1995). Therefore, interpreting the stimuli differently (i.e., reappraising) alters emotional experience (Gross, 1998). However, reappraisal is best conceptualized as a category of emotion regulation strategies (rather than a single strategy) because there are different ways of reinterpreting situations (McRae et al., 2012).

Perhaps the most well researched form of reappraisal is detachment, which involves mentally distancing oneself from the situation or downplaying its importance to downregulate the unwanted emotion (Gross, 1998). Examples include suggestions for speakers to focus less on themselves (Daly et al., 1989) or view an event from a more distant perspective (White et al., 2019). Although detachment is effective in some situations, there are two reasons why it may not work well in the context of entrepreneurial pitches. First, passionate feelings are negatively associated with detachment (Bredehorst et al., 2024), so entrepreneurs' psychological attachment to their ventures may make it difficult to focus less on themselves or distance themselves from the pitch. Second, apparent detachment from the venture may prompt investors to make less favorable inferences about an entrepreneur's motivation and be less likely to provide funding (see Huang, 2018; Murnieks et al., 2016).

Positive reappraisal is another form of reappraisal that involves reframing situations to focus on their potential benefits or positive meanings to upregulate positive emotions (Folkman & Moskowitz, 2000). Positive reappraisal is effective in extremely difficult situations, such as caring for and losing a partner to a catastrophic illness (e.g., Folkman, 1997). Some evidence suggests that positive reappraisal is effective at managing speech anxiety in laboratory settings (Tugade & Fredrickson, 2004), but studies have yet to investigate whether positive reappraisal is effective in high-stakes, anxiety-provoking presentations in real life. Moreover, other evidence suggests that many people fail to spontaneously generate new ways of thinking about daily stressors (Ford & Troy, 2019; Suri et al., 2015). Therefore, there is a need for research that explores strategies for reappraising consequential, self-relevant emotional situations in real life to boost performance on discrete tasks, such as entrepreneurial pitches.

To lay the foundation for explaining why linking anxiety to passion should be both viable for entrepreneurs to enact in the moments before a pitch and effective in boosting pitch performance, we briefly review the literature on entrepreneurial passion.

2.3. Entrepreneurial Passion

Passion has been noted as "perhaps the most observed phenomenon of the entrepreneurial process" (Smilor, 1997, p. 342). Research on entrepreneurial passion seeks to understand what motivates individuals to engage and persist in entrepreneurial activities despite the prevalence of obstacles. Entrepreneurial passion includes intense positive feelings (e.g., excitement, enthusiasm, joy) about aspects of entrepreneurship, including activities (e.g., inventing, developing, founding; Cardon et al., 2013) or a particular product or business domain (Warnick et al., 2018). Entrepreneurial passion is associated with activities that are deeply meaningful to the entrepreneurs and central to their self-identity (e.g., Cardon et al., 2009; Murnieks et al., 2020; Vallerand et al., 2003). The meaningfulness of the activity prompts conscious reflection about the feeling of passion, which makes these intense positive feelings cognitively accessible, or available for retrieval from memory when not already salient (Cardon et al., 2009).

Having intense positive feelings about entrepreneurial activities is a hallmark of entrepreneurial passion, but passionate entrepreneurs can experience a wide range of emotions on any given day based on the situations they encounter (Morris et al., 2012). That is, even the most passionate entrepreneurs do not always experience intense positive feelings every moment while engaging in entrepreneurial activities (Pollack et al., 2020; Schabram & Maitlis, 2017). Entrepreneurs' moment-to-moment, conscious experience of passionate feelings ebbs and flows over time, depending on what other emotions the immediate situation triggers. For example, frustration or sadness may dominate an entrepreneurs' emotional experience immediately after losing a client or an investor, even while they remain passionate about the venture overall (Cardon, 2008). In short, stable and enduring passion in the long term is distinct from the experience of passionate feelings in the moment; individuals' emotional experience in each moment is the product of stable tendencies they carry with them across situations, like their passion, and more immediate situation-specific stimuli (Morris et al. 2012; Stroe et al., 2020).

When entrepreneurs experience negative emotions due to the challenges they face in a specific situation, making passionate feelings for the venture salient should help. Theories of entrepreneurial passion assert that with experience and learning, entrepreneurs should be able to regulate, maintain, or even enhance their experience of passionate feelings in the moment (Cardon et al., 2009; Murnieks et al., 2020). That is, entrepreneurs are not passive recipients of stimuli; they can play an active role in managing their feelings. However, little, if any, research has explored ways entrepreneurs can make salient their passionate feelings. In sum, many entrepreneurs experience anxiety right before pitching, and pitch anxiety may momentarily be more salient than their passion. In those moments, entrepreneurs may interpret their anxiety in light of their passion, conceptually linking the two and consciously making their passionate feelings salient immediately before and during the pitch.

2.4. Linking Anxiety to Passion

Linking anxiety to passion is a form of positive reappraisal that involves reinterpreting anxiety as a reflection of the importance of the venture to the entrepreneur and their passion for the venture. By casting pitch anxiety in this new light, entrepreneurs can upregulate passionate feelings in the moment. Linking anxiety to passion leverages similarities between passionate feelings and pitch anxiety. Although opposite in valence (i.e., positive versus negative), research suggests that people perceive a connection between anxiety and passion. As an impression management technique, people experiencing anxiety who verbally attribute their distress to their passion for their work can shape observers' judgments in a positive way (Wolf et al., 2016). Wolf and colleagues focused on verbal justifications rather than regulating experienced emotions and nonverbal displays. Nevertheless, their work supports the link between anxiety and passion and the potential for people to leverage that link to regulate their emotional experience.

The link between passion and pitch anxiety stems from similarity on three major components of emotions. Foundational research indicates that several universal dimensions can describe and explain similarities and differences across emotions, including physiological states, behavioral impulses, and appraisals (e.g., Lazarus, 1991; Smith & Ellsworth, 1985; Frijda, 1988). Two emotions may share similar features despite being opposite in valence, and this congruence increases the feasibility of upregulating one emotion when experiencing the other (Scott et al., 2020). Physiologically, anxiety and passion are both characterized by high levels of bodily activation; they reflect arousal rather than calmness (e.g., Barrett & Russell, 1999; Cardon et al., 2009). In terms of behavioral impulses, both passion and anxiety are characterized by high levels of action readiness (Cardon et al., 2009; Frijda et al., 1989). In short, the bodily sensations and impulses associated with feeling anxious and passionate are similar.

Perhaps most important, anxiety and passion are similar in terms of appraisals because they both reflect interpretations that an event is very important (Lazarus & Folkman, 1984; Vallerand & Houlfort, 2003). People only feel anxious about things that they care about, such as events with personally consequential outcomes (Frijda, 1988; Wolf et al., 2016). Similarly, passion involves intense positive feelings about activities that one identifies with and deems central to their sense of self (Cardon & Murnieks, 2020). Illustrating this theoretical connection between anxiety and passion, one entrepreneur in Study 1 noted: "I worry about people not liking what I was passionate about. It was personal." Thus, anxiety and passionate feelings are only likely to occur when individuals believe that the situation is important to them. In sum, anxiety and passion are very similar on three key dimensions of emotions, and these similarities should make it achievable and realistic for entrepreneurs to link their anxiety to passion, making their passionate feelings salient in the moment.

Passionate feelings automatically trigger nonverbal expressions that are readily observable to others unless deliberately suppressed (Schwarte et al., 2023), and displaying passion during pitches elicits positive evaluations of entrepreneurs and their venture (Hsu et al., 2014; Huang, 2018; Murnieks et al., 2016). Displaying passion increases investors' predictions about the likelihood of venture success (Davis et al., 2017), judgments of funding potential

(Mitteness et al., 2012), and the amount of funding raised (Li et al., 2017). These effects emerge in part because entrepreneurs' passion can evoke investors' enthusiasm about the venture through emotional contagion (Cardon, 2008; Li et al., 2017). Investors attribute their positive emotional experience during the pitch to the venture, which in turn leads to more favorable evaluations (Barsade, 2002). For example, one investor noted, "it's about passion… [a founder] was so passionate about it, that it made me passionate about it" (Huang, 2018, p. 1837). Investors also tend to interpret displayed passion as signals of tenacity and inspirational leadership (Huang & Pearce, 2015; Murnieks et al., 2016), traits investors view as key indicators of potential for success (Mitteness et al., 2012). As one investor noted, "…after the first few years, that's when things really get hard. [Entrepreneurs] that have true passion can get themselves past that point and into the arena of big, massive success" (Huang, 2018, p. 1837).

In summary, linking anxiety to passion is a specific type of reappraisal designed for entrepreneurs to use prior to pitching. By deliberately making the association between pitch anxiety and passionate feelings, the linking anxiety to passion strategy seeks to downregulate anxiety and upregulate passionate feelings. As a result, we expect that entrepreneurs who link their anxiety to passion will improve their pitch performance in the eyes of potential investors.

Hypothesis 1. Linking anxiety to passion will improve pitch performance.

2.5. Two Distinct Paths to Improving Pitch Performance

Reappraisal changes how one construes an emotion-eliciting situation, thereby changing its emotional impact (Gross & John, 2003). By changing how one sees a situation, reappraisal alters both one's internal experience and external displays of the emotion (Gross, 1998). Reappraisal can alter the intensity of positive emotions, negative emotions, or both (Shiota & Levenson, 2012; Gross & John, 2003). For example, research in organizational behavior and psychology indicates that reappraisal is negatively associated with job-related anxiety (Latack, 1986) and positively associated with positive emotions and psychological well-being (Gross, 2015). Therefore, we posit that linking anxiety to passion will have a positive effect on pitch performance via its ability to reduce anxiety, evoke passionate feelings, or both.

Many people view anxiety as detrimental to performance, and this worry can erode confidence and intensify anxiety, constituting a vicious cycle (McGonigal, 2015). Linking anxiety to passion involves reframing anxiety as a reflection of passion—a desirable characteristic in the eye of investors (Murnieks et al., 2016). This positive reframing may mitigate anxiety by breaking the negative recursive cycle of thoughts (Crum et al., 2013) that underlie pitch anxiety. Furthermore, the network theory of affect suggests that information in memory is organized according to specific emotion themes, and when an individual experiences an emotion, the past events and beliefs associated with that emotion become activated and salient (Bower, 1981). Therefore, reinterpreting anxiety as a reflection of passion may make salient positive beliefs associated with the entrepreneur's ideas and achievements. These thoughts may counter the sense of helplessness and low controllability, which in turn reduces anxiety (Frijda et al., 1989). Lowering anxiety, in turn, may improve pitch performance because anxiety produces verbal and non-verbal cues, such as less eye contact and less fluidity in bodily gestures (Clevenger, 1959), which lower evaluators' ratings of confidence and persuasiveness (Mulac & Wiemann, 2009). Taken together, these reasons suggest that linking anxiety to passion may improve pitch performance because it reduces anxiety.

Hypothesis 2a. Linking anxiety to passion will reduce pitch anxiety.

Hypothesis 2b. The positive effect of linking anxiety to passion on pitch performance will be mediated by a reduction in anxiety.

Another way linking anxiety to passion may improve pitch performance is by making passionate feelings more salient in the moment. As mentioned above, entrepreneurs experience a wide range of positive and negative emotions during the entrepreneurial journey, even as they maintain their passion over time (Cardon et al., 2009; Morris et al. 2012; Stroe et al. 2020). Theories of entrepreneurial passion posit that passionate feelings are "stored cognitively for later retrieval" and "consciously accessible," though not always the dominant emotional experience at every point in time (Cardon et al., 2009, p. 515). To the extent that the moments before pitches are stressful, passion is likely to fall outside of attention. Previous research indicates that reappraising events can induce positive emotions (Brooks, 2014; Shiota & Levenson, 2012). By consciously reappraising their pitch anxiety as a reflection of their passion, the linking anxiety to passion strategy helps entrepreneurs make their passionate feelings salient.

Moreover, theories of emotions maintain that emotions simultaneously comprise appraisals, physiological states, and behavioral impulses (e.g., Lazarus, 1991; Smith & Ellsworth, 1985; Frijda, 1988). As a result, entrepreneurs should display more passion during their pitch through expressional cues such as facial expressions, body language, and vocal tone (Chen et al., 2009; Schwarte et al., 2023), which is perceived favorably by investors as we discussed above (e.g., Murnieks et al., 2016).

Hypothesis 3a. Linking anxiety to passion will enhance passionate feelings in the moment.

Hypothesis 3b. The positive effect of linking anxiety to passion on pitch performance will be mediated by increases in passionate feelings.

Study 1 explores how entrepreneurs tend to cope with anxiety without any direction or intervention. A field study (Study 2) and a lab experiment (Study 3) test whether linking anxiety to passion increases pitch performance (H1), reduces anxiety (H2a), and enhances passionate feelings (H3a). The studies also test the mediating roles of anxiety and passionate feelings in the effect of linking anxiety to passion on pitch performance (H2b and H3b). Moreover, theories of emotions assert that the experiences of emotions are automatically displayed through facial expressions and body language that can be perceived by observers (Elfenbein, 2007; Schwarte et al., 2023). Therefore, we sought converging evidence of the emotional processes operating across studies by assessing judges' perceptions of anxiety and passion in the field study (Study 2) and both entrepreneurs' subjective experiences and judges' ratings of nonverbal expressions in the lab experiment (Study 3). Supplemental materials report all the prompts and measures used in each study

3. Study 1: How Entrepreneurs Cope with Pitch Anxiety

3.1. Participants

The goal of the study was to shed light on how entrepreneurs naturally cope with their emotions (without any direction). We recruited 100 entrepreneurs in the United States and the United Kingdom from a panel maintained by Prolific (prolific.co), an online research platform.[1] Prolific provides prescreening criteria to allow researchers to access specific populations, and we included screening questions that confirmed that respondents had run their own businesses and could provide basic information about their venture and the funding process. Respondents also indicated whether they had experience pitching to key stakeholders, including potential investors and partners.[2] We excluded participants who established their ventures more than seven years before the pitch occurred, in accordance with prior operationalizations of entrepreneurs (e.g., Carter et al., 1994; Shrader et al., 2000). The ventures in the final sample (N = 49) were established less than one year on average when the recalled pitch took place. The sample was 42.9% female and ranged in age from 18 to 69 (M = 42, SD = 11.68); 73.5% identified as White, 14.3% as African American, 8.2% as Asian, 2.0% as Hispanic or Latino, and 2.0% mixed ethnicity. Entrepreneurs in the sample pitched eight times in the past on average (SD = 9.41).

3.2 Measures and Procedures

Respondents recalled their most recent pitch and answered an open-ended question that asked them to describe in detail how they managed their anxiety in the moments before the pitch. The instructions emphasized that they should describe how they actually managed their anxiety, not what they think they should have done in retrospect. The open-ended question format elicited descriptions of regulation strategies without cueing any specific strategies, allowing us to identify each participant's dominant strategy without demand characteristics.

Two raters independently categorized the emotion regulation strategies respondents used (see Table 1 for definitions, examples, and frequencies of use). The raters agreed on 90% of their codes and resolved discrepancies through discussion. The coding scheme included four cognitive strategies from the process model of emotion regulation—distraction, suppression, detachment, and positive reappraisal—that involve modification of emotional experience or expressions (Gross, 2015; Shiota & Levenson, 2012). We included three other categories—physiological response modulation, situation modification, and acceptance—to account for all the strategies

[1] Empirical research shows that Prolific participants exhibit high levels of attention and honesty (Peer et al., 2022). We recruited entrepreneurs with a track record of answering questions thoughtfully (Prolific approval rate > 95%). Prolific has been used in prior research to sample entrepreneurs (e.g., Engel et al., 2020; Zhu et al., 2023).

[2] We included participants who pitched to key stakeholders other than investors to increase the sample pool. Our theory focuses on pitching to potential investors but pitching to any key stakeholder is likely to be anxiety-provoking. Thirteen participants in the sample answered the survey based their experience pitching to other key stakeholders. The results were similar irrespective of whether we included them in analyses.

participants mentioned (Brooks et al., 2015). Physiological response modulation refers to activities aimed to mitigate physiological consequences of emotional experiences without changing the emotional experience itself. Situation modification entails taking action to alter the situation rather than directly modifying the emotional experience. Few respondents reported using this approach, likely because the current research focuses on the moments immediate before rather than days or weeks before pitches. Acceptance refers to allowing the experience of the emotion without attempting to control or avoid it (Campbell-Sills et al., 2006). Because acceptance does not involve action, one could question whether acceptance is an emotion regulation strategy. However, it can be an adaptive way to manage stressful situations (Campbell-Sills et al., 2006). Also, because linking anxiety to passion entails accepting rather than denying anxiety, it is informative to examine how often entrepreneurs tend to accept their anxiety.

3.3. Results

The most common strategy was distraction; 49.0% of respondents reported using it as their primary means of anxiety regulation in the moments before pitching. Examples include focusing on their materials and on potential positive outcomes. The second-most used strategy was physiological response modulation; 40.8% of respondents reported mitigating physiological consequences of anxiety without changing the emotional experience itself. Examples include breathing deeply, wearing comfortable clothes, and having snacks. The third-most used strategy was detachment (14.3%). Examples include reminding themselves that there are other opportunities in the future even if the pitch did not go well and thinking that because they are already successful a failure would not eliminate their past success. Notably, a small percentage (12.2%) reported using a form of positive reappraisal.

Table 1.
Emotion Regulation Strategies Identified in Open-ended Responses (Study 1)

Strategies	Definition	Examples	Frequency
Distraction	Direct attention away from the emotion and focus on positive or neutral stimuli	Focus on the pitch materials	49.0%
Physiological response modulation	Mitigate physiological consequences of the emotional experience	Breathe deeply	40.8%
Detachment	Detach oneself from the emotional event by thinking that it is unimportant	Remind oneself that there are other opportunities in the future even if this pitch does not go well	14.3%
Positive reappraisal	Think about the emotional stimuli from a positive perspective	Remind oneself that they are well prepared for this pitch and the idea is great	12.2%
Situation modification	Alter the situation to modify its emotional impact	Check over information to ensure they can answer all the questions	6.1%
Suppression	Inhibit expressions of the emotion	Smile, appear happy and excited	4.1%
Acceptance	Allow the experience of the emotion and not attempt to control or avoid it	Allow oneself to feel anxious	2.0%

Note. The percentages do not add up to exactly 100% because many participants mentioned multiple categories.

3.4. Discussion

Study 1 found that distraction is the most common strategy entrepreneurs use to manage anxiety before pitches, and few use any form of positive reappraisal. This pattern is consistent with evidence that people often choose regulation strategies that require little cognitive effort (Brans et al., 2013; Sheppes et al., 2011; Suri et al., 2015). Our finding is noteworthy because it shows that entrepreneurs may not spontaneously use the most effective strategy. Moreover, prior research in other contexts finds that reappraisal is generally the most effective way to regulate emotions (Webb et al., 2012), but people are not always able to reinterpret stressful events in positive ways (Ford et al., 2019; Ford et al., 2017). It may be especially challenging to reappraise immediately before a pitch because the impending pitch may generate heavy cognitive load and leave little bandwidth left for generating alternative appraisals in the moment.

Providing people with specific ways to reappraise situations eliminates the cognitive costs of generating

reappraisals and increases the likelihood of reappraisal (Sheppes et al., 2014). Therefore, it would be useful to design a specific reappraisal tactic entrepreneurs can use before pitching. Also, other emotion regulation strategies aim to decrease anxiety, but linking anxiety to passion involves both anxiety and passionate feelings, providing multiple paths to improving pitch performance.

4. Study 2: Linking Anxiety to Passion Before Pitching

Study 2 builds on the results from Study 1 by testing our hypotheses in a field study of pitch competitions. Study 2 examines the effects of different emotion regulation strategies on entrepreneurs' outcomes in pitch competitions. It assesses how entrepreneurs regulate their emotion in the moments immediately before an important pitch (rather than in retrospect), and it uses judges' ratings of pitches as an external indicator of pitch success.

4.1 Participants and Procedures

We surveyed entrepreneurs and judges during the semifinals of annual new venture competitions at two business schools in Southern California in three consecutive years (2020-2022).[3] The semifinals were the first round involving pitches and included a total of 203 venture ideas; a panel of judges selected ventures for inclusion in the semifinals based on business plan summaries. Cash prizes totaling about $100,000 were awarded to ventures at each competition, constituting high-stakes events for the entrepreneurs. Judges in the competitions were from the Southern California entrepreneurship community and included successful entrepreneurs, experienced investors, members of investment support organizations, and senior managers of large companies. The entrepreneurs prepared a slide deck and pitched for 10 minutes.

Half an hour before each pitch, presenters received the survey described below. Immediately after each pitch, judges scored the venture's funding potential. The scores used in the study were the official ratings used in the competition to select which ventures advanced to the final round. Judges also rated presenters' levels of anxiety and passion.

Of the 203 ventures in the semi-finals of the competitions, 115 provided complete data for the study. A one-way ANOVA found no significant difference in funding potential ratings between those who participated or opted out of the study, $F(1, 170) = 0.04$, $p = 0.85$, $\eta^2 < 0.001$. The presenters in the sample were 35.6% female, ranged in age from 18 to 52 ($M = 26$, $SD = 5.94$), and had pitched about nine times in the past ($SD = 23.70$). The judges averaged 28 years ($SD = 10.90$) of work experience, 65% had startup experience, 18% were female, and 76% had an MBA, other master's degree, or a doctoral degree.

4.2. Measures

4.2.1. Emotion regulation strategies

Respondents were instructed to answer the questions based on what they were doing in that moment (in the last 30 minutes before pitching), not what they thought should be done. Two items assessed whether participants linked anxiety to passion to manage their anxiety about the pitch. Participants indicated how much they were doing the following two things on five-point scales with scale point labels ranging from 1 = *Not at all* to 5 = *Very much*: "Tell myself that I am anxious partly because I care about my venture so much." "Tell myself that anxiety may reflect that I am a passionate entrepreneur." ($\alpha = 0.80$).

We included other regulation strategies to demonstrate the unique effect of linking anxiety to passion and rule out the possibility that the observed effects might be driven by anxiety regulation more broadly. Specifically, we measured the use of distraction and suppression because they are heavily researched emotion regulation strategies aimed at directly modifying the emotional experience or expressions (e.g., Gross, 1998, 2015).

To assess distraction, participants indicated how much they agreed or disagreed with two items on five-point scales with scale point labels ranging from 1 = *Not at all* to 5 = *Very much*: "Try to ignore my anxiety." "Direct my attention away from my feelings." ($\alpha = 0.77$; Brans et al., 2013). Similarly, two items assessed suppression: "Control my anxiety by not expressing it." "Keep my anxiety to myself." ($\alpha = 0.77$; Gross & John, 2003).

Because linking anxiety to passion constitutes one type of reappraisal, we also included detachment as a comparison reappraisal strategy. Participants indicated how much they agreed or disagreed with two items on five-point scales with scale point labels ranging from 1 = *Not at all* to 5 = *Very much*: "Tell myself that this pitch is not

[3] Six pitches came from a competition held at a business school in the Midwest. The results are the same whether these data are included or excluded from analyses.

as important as it seems." "Tell myself that there are other opportunities in the future even if this pitch does not go well." (α = 0.81; Wirth et al., 2017). See supplemental materials for a confirmatory factor analysis to assess convergent and discriminant validity of the items.

4.2.2 Perceived anxiety and passion

Following prior research on emotions in funding pitches (e.g., Li et al., 2017; Huang, 2018), we examined the competition judges' perceptions of entrepreneurs' anxiety and passion. Judges' ratings of perceived anxiety and passion provide valuable information about their perceptions of the pitches, avoid potential response biases in self-reported emotions, and reduce common method bias caused by using the same survey for both emotion regulation strategies and emotions (Chen et al., 1997; Podsakoff et al., 2003).

Judges reported perceived anxiety by indicating on a 7-point scale how much they agreed or disagreed with the statement "The presenter appears anxious." (Beltzer et al., 2014). Judges reported perceived passion by indicating on a 7-point scale how much they agreed or disagreed with the statement "The presenter appears passionate about the project idea." (Li et al., 2017). Single-item measurement of these constructs was required due to the time constraints of the competition. We averaged the ratings across judges ($ICC_{anxiety}$ = 0.72; $ICC_{passion}$ = 0.88).

4.2.3. Funding potential

Judges completed the official rating form for the competition, which assessed the ventures' funding potential. The rating form differed across competitions; each competition used a rating form that included at least 10 questions, assessing aspects of the venture that contribute to its funding potential, such as unique value of the product or service, clear identification of the target market, viability of the business model, etc. At least three judges evaluated each pitch, and evaluations of each venture were averaged across judges (ICC = 0.83). We standardized scores within each competition to account for differences between rating forms.

4.2.4. Control variables

We included four classes of control variables. First, we included entrepreneurs' prior pitch experience, hours spent in preparation, and education (because human capital can impact pitch outcomes; e.g., Davis et al., 2017). The distribution of hours spent in preparation was positively skewed, so we log transformed scores to adjust for outliers. Second, two items assessed trait speech anxiety on a seven-point scale from 1 = *Strongly disagree* to 7 = *Strongly agree*: "I have no fear of giving a speech." "Giving a speech makes me anxious." (α = 0.72; Daly et al., 1989). Third, we also included dummies for the competition site and year because data collection occurred in different competitions over three years. Finally, we controlled for gender and age because each can covary with the use of emotion regulation strategies (Nolen-Hoeksema & Aldao, 2011) and can influence perceptions of entrepreneurs (e.g., Becker-Blease & Sohl, 2007; Warnick et al., 2021). We did not include venture age because it was homogeneous in the current sample; the competitions were for early-stage ventures that had not received financial backing from professional organizations or venture capitalists. The results were the same irrespective of whether we include demographic control variables in the analyses.

4.3. Results

Table 2 presents the means, standard deviations, and correlations among the variables.

Table 3 reports OLS regressions that test Hypotheses 1, 2a, and 3a. Step 1 contains the control variables, including entrepreneurs' demographics, pitch experience, pitch preparation, trait speech anxiety, competition site, and competition year. Step 2 adds all emotion regulation strategies except linking anxiety to passion. Step 3 adds linking anxiety to passion.

Hypothesis 1 predicts that linking anxiety to passion will enhance pitch performance. OLS regression found that linking anxiety to passion was positively associated with judges' ratings of funding potential, B = 0.20, SE = 0.08, p = 0.02, explaining 4.5% of unique variance. Therefore, the results support Hypothesis 1.

Hypothesis 2a predicts that linking anxiety to passion will decrease perceived anxiety. OLS regression found that the effect of linking anxiety to passion on perceived anxiety was nonsignificant, B = 0.03, SE = 0.09, p = 0.74. Therefore, Hypothesis 2a was not supported.

Hypothesis 3a predicts that linking anxiety to passion will enhance perceived passion. OLS regression found that linking anxiety to passion was positively associated with perceived passion, B = 0.20, SE = 0.09, p = 0.02, explaining 4.5% of unique variance. Therefore, the results support Hypothesis 3a.

Table 2.
Means, standard deviations, and correlations (Study 2)

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11	12
1. Age	26.4	5.94	1											
2. Gender	0.36	0.43	-0.05	1										
3. Education	2.23	0.71	0.45**	-0.01	1									
4. Pitch experience	8.92	23.7	0.00	-0.13	0.09	1								
5. Preparation	37.7	52.5	-0.05	-0.16	-0.03	-0.00	1							
6. Trait speech anxiety	4.47	1.35	-0.06	0.27**	-0.17	-0.06	-0.08	1						
7. Distraction	2.71	0.92	-0.12	0.11	-0.19*	-0.05	0.14	0.18	1					
8. Suppression	2.52	0.92	-0.25*	-0.00	-0.07	0.08	-0.13	-0.12	0.39**	1				
9. Detachment	3.00	1.12	0.05	0.08	-0.14	-0.01	-0.06	-0.06	0.05	0.02	1			
10. Linking anxiety to passion	2.88	1.18	0.07	0.02	0.00	-0.21*	0.30**	0.07	0.18	-0.08	0.20*	1		
11. Perceived anxiety	3.12	1.41	0.07	0.06	-0.04	-0.08	0.04	0.02	0.07	0.07	0.04	0.06	1	
12. Perceived passion	5.57	1.06	0.12	0.22*	0.04	-0.09	0.04	0.15	0.01	-0.05	-0.05	0.25*	-0.10	1
13. Funding potential	-0.02	0.92	0.09	0.13	0.11	0.14	0.07	0.23*	0.05	0.02	-0.06	0.23*	-0.15	0.47**

Notes. N = 115. For gender, 0 = "male," 1 = "female." For the highest degree of education completed, 1 = High school, 2 = Bachelor's degree, 3 = Master's degree, 4 = Doctoral degree. Funding potential scores within each competition are standardized to account for differences in ratings scales across competitions. * $p < .05$ ** $p < .01$

Hypotheses 2b and 3b predict that anxiety and passion mediate the effect of linking anxiety to passion on funding potential evaluation. We tested mediation using Model 4 of the PROCESS macro with 5000 bootstrap samples (Hayes, 2013). The indirect effect of linking anxiety to passion on funding potential through perceived anxiety was nonsignificant, *indirect effect* = -0.005, *Boot SE* = 0.02, 95% bias corrected CI [-0.04, 0.04]. Therefore, Hypothesis 2b was not supported. However, perceived passion mediated the effect of linking anxiety to passion on funding potential, *indirect effect* = 0.08, *Boot SE* = 0.04, 95% bias-corrected CI [0.02, 0.16]. Therefore, the results supported Hypothesis 3b. The results remain the same when the two mediators are included in the model simultaneously (see supplemental materials).

Given that the judges provided ratings of perceived anxiety, perceived passion, and funding potential, common method bias might be a concern (Podsakoff et al., 2003). Aggregating the variables across multiple judges alleviated this concern to some extent. Also, our results are inconsistent with the idea that common method bias accounts for the association between the mediator (perceived passion) and the dependent variable (funding potential evaluation) because perceived anxiety did not correlate with perceived passion or funding potential (see Table 2). Nevertheless, we conducted a common latent factor analysis to estimate common method variance (Podsakoff et al., 2003). First, we ran a confirmatory factor analysis that included three latent factors representing perceived anxiety, perceived passion, and funding potential respectively (χ^2 = 32.854, *df* = 24, CFI = 0.979, RMSEA = 0.057; SRMR = 0.055). Then, we added a common latent factor uncorrelated with the other factors (χ^2 = 11.051, *df* = 15; CFI = 1.00, RMSEA < 0.001, SRMR = 0.029). Factor loadings on all three latent factors remained statistically significant (ps < 0.001). All factor loadings on the common latent factor were lower than 0.5, indicating that the common factor explained less than 25% of the variance, well below the 50% threshold for concern (e.g., Jiang et al., 2022). Also, the association between perceived passion and funding potential remained significant ($p < 0.001$). In sum, common method variance does not account for the statistical relationship between perceived passion and funding potential.

Table 3.
OLS Regression Results for Study 2

	Funding potential			Perceived anxiety			Perceived passion		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Control variables									
Age	0.02	0.02	0.01	0.02	0.02	0.02	0.03	0.03	0.02
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Gender	0.24	0.25	0.27	0.14	0.13	0.14	0.43*	0.44*	0.46*
	(0.21)	(0.21)	(0.20)	(0.23)	(0.23)	(0.23)	(0.22)	(0.22)	(0.21)
Education	0.22	0.20	0.16	-0.13	-0.13	-0.13	0.09	0.07	0.02
	(0.14)	(0.15)	(0.14)	(0.15)	(0.16)	(0.16)	(0.15)	(0.15)	(0.15)
Pitch experience	0.01*	0.01*	0.01*	-0.002	-0.002	-0.002	-0.001	-0.001	0.0001
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Preparation	0.15	0.18	0.09	0.23	0.27	0.26	0.20	0.20	0.11
	(0.19)	(0.19)	(0.19)	(0.20)	(0.21)	(0.21)	(0.20)	(0.20)	(0.20)
Trait speech anxiety	0.20**	0.21**	0.19*	-0.02	-0.01	-0.02	0.08	0.08	0.06
	(0.07)	(0.07)	(0.07)	(0.08)	(0.08)	(0.08)	(0.07)	(0.08)	(0.08)
Alt. regulation strategies									
Distraction		-0.04	-0.08		0.03	0.02		-0.02	-0.06
		(0.11)	(0.11)		(0.12)	(0.12)		(0.11)	(0.11)
Suppression		0.10	0.12		0.12	0.13		-0.02	0.04
		(0.11)	(0.11)		(0.12)	(0.12)		(0.12)	(0.11)
Detachment		-0.01	-0.06		0.03	0.02		-0.04	-0.10
		(0.08)	(0.08)		(0.08)	(0.09)		(0.08)	(0.08)
Linking anxiety to passion			0.20*			0.03			0.20*
			(0.08)			(0.09)			(0.09)
ΔR^2		0.008	0.045		0.018	0.001		0.004	0.045
R^2	0.149	0.157	0.202	0.035	0.053	0.054	0.116	0.120	0.165

Note. $N = 115$. The number of hours spent in preparation was log transformed. Standard errors in parentheses.
** $p < .01$, * $p < .05$. Dummy variables for competition sites and year (all nonsignificant) are omitted from the table.

4.4. Discussion

Study 2 indicated that the emotion regulation strategies entrepreneurs used in the moments before their pitches influenced judges' evaluations of the pitches. Specifically, judges perceived more passion during pitches made by entrepreneurs who linked anxiety to passion, which in turn led to more favorable evaluations of funding potential. Linking anxiety to passion did not influence perceived anxiety. The absence of an effect on anxiety may be because linking anxiety to passion involves being aware of the anxiety rather than attempting to downplay or eliminate anxiety.

Two aspects of Study 2 are especially noteworthy. First, the findings provide ecologically valid support for our theory. The effects emerged in a high-stakes field setting where entrepreneurs' pitch performance is consequential for venture funding. Second, examining alternative regulation strategies revealed a unique effect of linking anxiety to passion, ruling out the possibility that the observed effects were driven by emotion regulation in general. Thus, emotion regulation strategies have different downstream consequences for pitch performance.

There were at least two limitations of the correlational design of the field study. First, there may be unobserved entrepreneur characteristics that covaried with which emotion regulation strategy entrepreneurs used. Because entrepreneur fixed effects were not feasible given the design, it is impossible to isolate strategy choice from individual differences and establish causality. Second, although we examined the effects of entrepreneurs' emotion regulation strategies on judges' perceptions of entrepreneurs' anxiety and passion, we are limited in our ability to test the effects of entrepreneurs' emotion regulation strategies on their subjective experience of anxiety and

passionate feelings because such tests would be subject to endogeneity concerns. Study 3 used an experimental design to address these limitations.

5. Study 3: Linking Anxiety to Passion Intervention

Experiments are high in internal validity, which is essential for testing the causal direction of effects (Fisher, 1984; Stevenson et al., 2020). Random assignment to experimental conditions ensures that the results cannot be due to unobserved variables, providing a clean test of causality. In Study 3, we randomly assigned participants to use either linking anxiety to passion or distraction to regulate their anxiety. We used distraction as the comparison condition for three reasons. First, we wanted to create a head-to-head comparison between linking anxiety to passion and the strategy entrepreneurs are most likely to use spontaneously (see Study 1). Second, distraction is a more conservative comparison than a no manipulation condition because any difference between experimental and control conditions could be driven by demand characteristics—people may expect or report changes in their emotions merely because of being asked to manage their emotions (Carroll, 2001). A no manipulation condition also would leave the choice about whether or how to regulate anxiety up to participants, which would create more variability in participants' experiences and outcomes and decrease the interpretability of the results. Third, distraction is a more conservative comparison than strategies that may dampen perceived commitment (e.g., detachment) and thereby artificially exaggerate the effect of the manipulation. In sum, Study 3 provides a conservative test and compares linking anxiety to passion with the emotion regulation strategy entrepreneurs use most often.

5.1. Participants

Students in an upper division business communication course at a large West Coast university completed the study in exchange for extra credit. Using a student sample in the current study enhanced internal validity by providing a more "sterile" environment within which we could isolate the causal effect of our manipulation (Hsu et al., 2017). Experienced entrepreneurs may have ingrained emotion regulation tendencies (De Cock et al., 2020) and may be unwilling to adopt an unproven emotion regulation strategy, especially before a consequential pitch. Also, Study 1 found that experienced entrepreneurs often use more than one anxiety regulation strategy before pitches, which could prevent an experimental manipulation from being "clean" and "focused" (Grégoire et al., 2019). In sum, experimental research in entrepreneurship often faces tradeoffs between internal and ecological validity because of ethical and practical concerns regarding the manipulation of real-life elements of entrepreneurs' projects (Grégoire et al., 2019; Hsu et al., 2017). We believe that using a student sample was justifiable for Study 3 because its primary goal was to address causality, which requires high internal validity. Moreover, students in the business communication course receive training and practice in public speaking, thereby reducing noise in the data related to variances in public speaking skills.

Although concerns about internal validity prompted us to use a student sample rather than entrepreneurs, we sought to augment the ecological validity of the study as much as possible. First, as with real entrepreneurial pitches, the study provided a performance-based monetary incentive. Second, participants self-selected a pitch topic that was personally important to them; the capstone requirement of their course asked them to solicit funding for a social cause they already supported or found meaningful. Consistent with this criterion, many students indicated they had committed time and resources to the organization and personally identified with it. Third, we video recorded the pitches to boost pitch anxiety (Brooks, 2014). Therefore, Study 3 should have sufficient ecological validity to support inferences about the success of linking anxiety to passion for entrepreneurs with relatively little pitching or venture experience. That said, Study 2 provides clear evidence that linking anxiety to passion is effective in a context high in ecological validity.

To identify an appropriate sample size, we used G*power to conduct a power analysis (Faul et al., 2007). We assumed $\eta^2 = 0.07$ based on a pilot test of the effect of the experimental manipulation on passionate feelings. Given that a sample of 90 would be adequate to obtain 80% power at $\alpha = 0.05$, we aimed at recruiting as many participants as possible during every academic term until reaching at least 90 participants. The sample ($N = 97$) was 68.0% female and ranged in age from 19 to 27 years ($M = 20.49$, $SD = 1.27$).

5.2. Design and Procedure

Participants learned that a committee would judge videos of the pitches and select the best one, awarding $75 in the name of the winning speaker to the cause championed in the pitch. They then had three minutes to review their notes for their three-to-five-minute pitch. After preparing but before delivering their pitch, participants were randomly assigned to the linking anxiety to passion or distraction condition and read their respective regulation instructions. Participants delivered their pitch in front of an experimenter with a video camera and then completed

the measures below.

Participants in the linking anxiety to passion condition were instructed to reappraise anxiety as a reflection of their passion about the topic. Specifically, they were reminded that the anxiety they were experiencing may stem from their desire to help their social cause. They also read that people often feel anxious about pitching when the idea being evaluated is deeply meaningful to them. In contrast, participants in the distraction condition were encouraged to distract themselves from the anxious feelings and ignore the anxiety-provoking thoughts (e.g., Jamieson et al., 2012).

5.3. Measures

In Study 3, we included self-report measures of participants' subjective emotional experience in addition to ratings of the emotions participants displayed based on nonverbal cues. We collected both emotional experiences and displays because both play a role in the phenomenon; documenting the effect of emotion regulation strategies on subjective emotional experience helps to illustrate the intrapersonal mechanism, and documenting changes in displayed passion helps to explain judges' evaluations of the ventures (Lucas et al., 2016). Unlike Study 2, Study 3 used random assignment to experimental conditions to alleviate endogeneity concerns when testing the effect of emotion regulation strategies on participants' own emotional experience. Online supplemental materials report the coding schemes we used to assess anxiety, passion, and pitch performance.

5.3.1. Experienced anxiety and passionate feelings

Using a five-point scale (1 = *Not at all* to 5 = *Very much*), participants indicated how much anxiety they felt in the moments before delivering their pitch using a three-item measure (anxious, tense, nervous, Brooks, 2014; $\alpha = 0.91$). They also indicated how strongly they experienced passionate feelings using three items (passionate, enthusiastic, excited, Bredehorst et al., 2024; $\alpha = 0.91$).[4]

5.3.2 Displayed anxiety and passion

Two research assistants rated displayed anxiety by evaluating nonverbal signals in the video-recorded pitches, including body movements and facial expressions (Beltzer et al., 2014). Similarly, they assessed displayed passion by coding body movements, facial expressions, and vocal tone (Chen et al., 2009). The raters were blind to condition and independently rated displayed anxiety (ICC = 0.89) and displayed passion (ICC = 0.78) on seven-point scales.

5.3.3. Pitch performance

We operationalized pitch performance as persuasiveness and funding recommendation. The raters used a seven-point scale to rate the speakers' persuasiveness (Brooks, 2014; ICC = 0.86). The raters also indicated the extent to which they recommended the speaker to receive the funding award on a five-point scale (ICC = 0.85).

5.3.4. Covariates

Preparation and trait speech anxiety may affect emotional display and pitch performance. Therefore, we had participants report how much time they spent preparing the final presentation before the lab session and a measure of trait speech anxiety (Daly et al., 1989, $\alpha = 0.86$). We used a dummy variable for year as a covariate because the data were collected over two years.

5.3.5. Manipulation check

To assess how well participants followed the reappraisal manipulation, participants indicated how much they agreed or disagreed with the following two items: "Told myself that I am anxious partly because I care about

[4] Our theory focuses on emotion regulation strategies and the salience of passionate feelings in the moment. Therefore, we assess passionate feelings rather than use measures of passion that are conceptually broader than our theorized mechanism and designed to assess one's ability to control feelings rather than the intense feelings per se (Vallerand et al., 2003) or passion toward specific roles over time rather than feelings in the moment (Cardon et al., 2013).

my charity so much." "Told myself that anxiety may reflect that I am passionate about the topic." Responses were averaged for analysis ($\alpha = 0.84$).

5.4. Results

Initial analysis indicated greater variability in the manipulation check items in the linking anxiety to passion than the distraction condition. An independent samples *t*-test that did not assume equal variances found that participants more strongly endorsed the manipulation check items when in the linking anxiety to passion ($M = 2.74$, $SD = 1.28$) than distraction condition ($M = 1.79$, $SD = 0.82$), $t(82.36) = 18.79$, $p < 0.001$, Hedges' $g = 0.88$. Therefore, the manipulation was successful.

Hypothesis 1 predicts that linking anxiety to passion should improve pitch performance. We operationalized pitch performance in two ways: persuasiveness and funding recommendation. Supporting Hypothesis 1, judges' rating of persuasiveness was higher for participants in the linking anxiety to passion ($M = 4.48$, $SD = 1.73$) than distraction condition ($M = 3.56$, $SD = 1.77$), $F(1, 95) = 6.63$, $p = 0.01$, $\eta^2 = 0.06$. Raters also indicated more positive funding recommendations in the linking anxiety to passion ($M = 3.08$, $SD = 1.28$) than distraction conditions ($M = 2.38$, $SD = 1.22$), $F(1, 95) = 7.72$, $p = 0.007$, $\eta^2 = 0.08$.

Hypothesis 2a predicts that linking anxiety to passion should reduce anxiety, thereby causing anxiety to be lower in the linking anxiety to passion condition than in the control condition (i.e., distraction). Hypothesis 2b predicts that anxiety will mediate the effects of linking anxiety to passion on pitch performance (i.e., persuasiveness and funding recommendation). One-way ANOVAs with emotion regulation condition as the independent variable found no significant effect on either experienced anxiety, $F(1, 95) = 0.01$, $p = 0.90$, $\eta^2 < 0.001$, or displayed anxiety, $F(1, 95) = 0.45$, $p = 0.50$, $\eta^2 = 0.005$. Bootstrap analyses with 5000 iterations using Model 4 in the PROCESS macro (Hayes, 2013) found that neither experienced anxiety nor displayed anxiety mediated the effect of linking anxiety to passion on either persuasiveness or funding recommendation, *indirect effects* < 1.12, 95% CIs include zero. Therefore, Hypotheses 2a and 2b were not supported.

Hypothesis 3a predicts that linking anxiety to passion should enhance passionate feelings, so passionate feelings should be higher in the linking anxiety to passion condition than in the control condition (i.e., distraction). A one-way ANOVA with emotion regulation condition as the independent variable found that participants' self-reported passionate feelings were higher in the linking anxiety to passion ($M = 3.24$, $SD = 1.13$) than distraction condition ($M = 2.74$, $SD = 1.10$), $F(1, 95) = 4.95$, $p = 0.03$, $\eta^2 = 0.05$. Similarly, judges' ratings of displayed passion also was higher in the linking anxiety to passion ($M = 4.56$, $SD = 1.62$) than distraction condition ($M = 3.46$, $SD = 1.60$), $F(1, 95) = 11.33$, $p = 0.001$, $\eta^2 = 0.11$.

Hypothesis 3b predicts that passionate feelings mediate the effects of linking anxiety to passion on pitch performance (i.e., persuasiveness and funding recommendation). Bootstrap analysis found that passionate feelings mediated the effect of experimental condition on persuasiveness, *indirect effect* = 0.28, *Boot SE* = 0.14, 95% CI [0.04, 0.56], and funding recommendation, *indirect effect* = 0.19, *Boot SE* = 0.10, 95% CI [0.02, 0.41]. Likewise, displayed passion mediated the effect of experimental condition on persuasiveness, *indirect effect* = 0.88, *Boot SE* = 0.27, 95% CI [0.37, 1.43], and funding recommendation, *indirect effect* = 0.61, *Boot SE* = 0.18, 95% CI [0.25, 0.97]. The results were robust when we included pitch preparation, trait speech anxiety, and year dummies as covariates in the analyses.

In sum, the results supported Hypotheses 3a and 3b, regardless of whether analyses used measures of participants' passionate feelings or judges' ratings of displayed passion.

5.5. Discussion

Study 3 provided causal evidence that linking anxiety to passion enhances pitch performance through increased passionate feelings. Two aspects of Study 3 are especially noteworthy. First, Study 3 compared linking anxiety to passion versus distraction, the strategy entrepreneurs in Study 1 reported using most often. Thus, Study 3 showed that linking anxiety to passion is more effective than how entrepreneurs tend to manage their anxiety, which illustrates the value of improving entrepreneurs' emotion regulation skills. Second, because participants received emotion regulation instructions after their preparation time ended, the manipulation could only have influenced delivery, not the content or structure of the pitch. Therefore, the current study provided a conservative test of the hypotheses.

6. General Discussion

We tested a strategy we derived from the process model of emotion regulation for entrepreneurs to use to cope with pitch anxiety and enhance pitch performance. Prior research on entrepreneurial pitches mainly focuses on investors' perspectives, including how displayed passion boosts funding outcomes (Hsu et al., 2014; Huang, 2018; Murnieks et al., 2016). Yet little is known about entrepreneurs' experience of pitching and how they can overcome anxiety and maintain or even enhance their performance.

We found that entrepreneurs can boost pitch performance by consciously reappraising their pitch anxiety as a reflection of their passion. A field study (Study 2) showed that the extent to which entrepreneurs linked anxiety to passion positively predicted displayed passion, which in turn enhanced judges' ratings of the pitch. We further validated this finding with a randomized lab experiment (Study 3) that compared linking anxiety to passion with distraction, the strategy entrepreneurs in Study 1 reported using most often. In the experiment, the linking anxiety to passion intervention increased both passionate feelings and displayed passion during pitches and enhanced judges' funding recommendations. The studies complemented each other because surveying entrepreneurs during venture competitions documented the effects in a context with high ecological validity, and the experiment provided strong tests of causality. Also, although many studies of entrepreneurial pitches focus on either raters' assessments of displayed passion or judges' perceptions of passion in the field (for reviews, see Cardon & Murnieks, 2020; Schwarte et al., 2023), our studies provide converging evidence that includes measures of experienced passionate feelings, nonverbal cues that express passion, and professionals' perceptions of passion. Professional judges' holistic perceptions of emotions in the field study (Study 2) provide ecologically valid evidence, whereas video recording and trained raters in the lab experiment (Study 3) allowed us to assess displayed passion via specific nonverbal cues. Thus, our mixed methods approach provided different types of support for our theory (see Singleton & Straits, 2009).

The finding that linking anxiety to passion enhanced pitch performance through increased passionate feelings—but not reduced anxiety—warrants further discussion. One reason why linking anxiety to passion did not decrease anxiety levels may be because it inherently involves acknowledging anxiety. Unlike many other types of reappraisal, linking anxiety to passion does not aim to deny or override the negative emotion. Alternatively, there may be realistic constraints on how much people can reduce anxiety in this context because critical situations automatically trigger alertness and bodily activation (Frijda, 1988). Consistent with this idea, none of the emotion regulation strategies significantly reduced anxiety in our field study. The finding that anxiety is resilient in the face of efforts to regulate it demonstrates the challenge of reducing pitch anxiety. After all, entrepreneurial pitches are often vital for venture growth and survival, which understandably generates anxiety.

6.1. Theoretical Implications

The current research extends theories of entrepreneurial affect in the following ways. First, we articulate the mechanisms that underpin several emotion regulation strategies and demonstrate that different strategies—even different types of reappraisal—can have different effects on pitch performance. Existing research on emotion regulation convincingly demonstrates the importance of emotion regulation for entrepreneurship, but it usually subsumes multiple emotion regulation strategies under a single label, leaving ambiguous the relative effectiveness of each strategy (see De Cock et al., 2020 for a recent exception). We consider the underlying mechanisms of emotion regulation and directly compare specific strategies in a specific context. Our approach provides additional explanatory power and new insights about how entrepreneurs can handle anxiety-provoking events.

Second, research on entrepreneurial pitches traditionally focuses on the value of positive emotions, especially in terms of how investors value passion (e.g., Hsu et al., 2014; Huang, 2018), and it has only recently has begun to examine negative emotions (Stroe et al., 2020; Warnick et al., 2021). The current research extends our understanding of entrepreneurial emotions in pitches by highlighting the fluid nature of emotional experience and the potential to achieve positive outcomes by leveraging anxiety to make passionate feelings salient. Entrepreneurs need not be passive when experiencing emotions. They can actively regulate emotions to shape their experience and boost their performance. Because negative emotions, including anxiety, are an inevitable part of entrepreneurs' experience, it is particularly useful to identify potential emotion management strategies that directly benefit performance rather than merely eliminate liabilities.

Third, the current research may be the first to document a way that entrepreneurs can make their passionate feelings salient and use them as a resource to get through difficult moments. Although theories of entrepreneurial passion explicitly state that passion is consciously accessible but not always salient (e.g., Cardon et al., 2009), most research to date examines passion over time and across situations. The current research examines passionate feelings

at a specific point in time and shows how an entrepreneur's efforts to regulate their emotions can influence how strongly they experience passionate feelings in the moment. Thus, the current research draws attention to an understudied aspect of entrepreneurial passion and suggests that additional theory and research is necessary to understand the momentary experience of passionate feelings, as well as how to harness them for success.

The current research also contributes to emotion regulation research by taking a step toward building a contextualized understanding of reappraisal. Entrepreneurial pitches are characterized by high stakes, intense anxious feelings, and high demands for cognitive functioning and emotional display, and our results show that linking anxiety to passion functions effectively under these conditions. Most reappraisal research to date is insensitive to context (Vishkin et al., 2020), which is problematic because teaching people to reinterpret one undesirable situation does not mean they will be able to reappraise in other situations (Denny & Ochsner, 2014; Vishkin et al., 2020). This conditional nature of the success of emotion regulation strategies across situations suggests that future research within the field of entrepreneurship can best serve entrepreneurial practice by investigating emotion regulation in specific situations rather than in general.

Moreover, most research on reappraisal involves overriding or denying at least some aspects of the emotions and their associated cognitive appraisals. For example, some use positive self-talk (e.g., "I can do this") when attempting to override the negative appraisals associated with anxiety (Neck & Manz, 1992). However, asserting positive statements and suppressing existing thoughts is cognitively depleting and may also trigger psychological reactance that, ironically, exaggerates the suppressed thoughts (e.g., Wegner et al., 1987; Wood et al., 2009). Other approaches involve relabeling the experience, essentially attempting to override an aversive emotion with a more favorable one (e.g., Brooks, 2014). However, relabeling may be less applicable to situations like entrepreneurial pitches, where the sources of the anxiety are extremely difficult to ignore (e.g., the high stakes of the pitch, worries about unanticipated questions, knowledge about weaknesses of the venture). It may not be realistic to expect that people can eliminate concerns of this gravity by putting a positive spin on the situation. Rather than seeking to deny anxiety and override its associated appraisals, linking anxiety to passion involves understanding anxiety as congruent with passion (e.g., in terms of the significance of the event to the person). Linking anxiety to passion therefore constitutes reappraisal based on increased emotion understanding, or the ability to understand causes of emotions and interrelationships among emotions (Mayer et al., 2001) and is in line with other findings that deeper knowledge about emotions can assist in regulating them (Feldman Barrett et al., 2001).

6.2. Practical Implications

The current findings show that entrepreneurs should be mindful of how they manage their emotions. Pitch training programs tend to focus on the content and style of delivery (Clingingsmith & Shane, 2018). Too often, entrepreneurs are left on their own to handle their emotions during the funding process, and it would be unfortunate if entrepreneurs and investors all missed a great opportunity because of mismanaged anxiety. Pitching is cognitively demanding, leaving little capacity for entrepreneurs to constantly monitor how they are handling their emotions in the moment. Instead, entrepreneurs should learn tactics about how to manage intense emotions in advance and deploy them in moments of need.

Linking anxiety to passion represents a technique that can enrich entrepreneurs' toolkits to improve their pitch performance. Prior to a pitch, entrepreneurs could remind themselves that the anxiety they are feeling is driven by their passion for their project. By viewing anxiety as a natural product of passion, they can reconnect with their passion and deliver more successful pitches. Entrepreneurial education programs may want to include linking anxiety to passion for its applicability and impact.

6.3. Limitations and Future Research

Our approach rests on the theoretical premise that entrepreneurial passion is consciously retrievable and accessible (e.g., Cardon et al., 2009). We show that linking anxiety to passion momentarily boosts the experience of intense positive feelings, which are considered a key characteristic of entrepreneurial passion (Gielnik et al., 2015) and the basis from which identity centrality develops (e.g., Tripathi et al., 2020; Zhao & Liu, 2023). However, one potential limitation of the current studies is that we do not measure entrepreneurial passion with a measure that includes identity centrality. Therefore, one could question whether linking anxiety to passion operates solely via intense positive feelings or activation of full-blown passion, including both passionate feelings and identity centrality. Although beyond the scope of the current research, future research could test whether linking anxiety to passion engages the identity-related processes associated with entrepreneurial passion. Future research could also

test whether repeatedly using the linking anxiety to passion strategy has any lasting effects on entrepreneurs' passion, above and beyond influencing entrepreneurs' passionate feelings in the moments before and during a pitch.

Relatedly, our research follows prior theory that assumes that entrepreneurial passion is prevalent among entrepreneurs (Cardon et al., 2005; Smilor, 1997). However, linking anxiety to passion depends on individuals' ability to interpret their anxiety as a reflection of their passion for the venture to make passionate feelings salient in the moment. Our studies found positive effects of linking anxiety to passion on pitch performance, but we did not assess baseline levels of entrepreneurial passion. Therefore, even though the results indicate that linking anxiety to passion was effective on average, it is unclear whether its effectiveness varies as a function of how much passion individuals have for their venture. It could be that linking anxiety to passion is more effective when entrepreneurial passion is higher rather than lower. However, it is also possible that making the cognitive association between anxiety as passion is—by itself—sufficient to boost the salience of passionate feelings in the moment, even if baseline levels of entrepreneurial passion are low. In sum, the current research does not examine how much passion is either necessary or optimal in terms of the effectiveness of linking anxiety to passion on pitch performance, and future research could examine this issue.

One limitation of Study 3 is that it used a student sample, which may raise questions about ecological validity. Entrepreneurship studies often face tradeoffs between types of validity (Grégoire et al., 2019). We conducted Study 2 in a field setting with real entrepreneurs to maximize ecological and external validity, and we conducted Study 3 in lab setting with students to maximize experimental control and internal validity. Although student participants in Study 3 selected a social cause that they found personally meaningful or already supported, the nature of their dedication may differ from entrepreneurs who identify with their venture. Nevertheless, our data show that student participants in Study 3 experienced anxiety prior to pitching and were able to use linking anxiety to passion to make their passionate feelings salient. Therefore, we have evidence that Study 3 was high in psychological realism, which concerns whether the same mental processes are operating in an experiment and its real-world analogue (Aronson et al., 1998; Grégoire et al., 2019). Thus, Study 2 and Study 3 complement each other in terms of validity. Study 2 shows the association between linking anxiety to passion and pitch performance in a context high in ecological validity. Study 3 demonstrates causality and finds additional evidence for the theorized mechanism, even though it involves a somewhat different context. The results of Study 3 also demonstrate that linking anxiety to passion can boost performance even when individuals have little prior experience.

One unexplained finding in the studies is that displayed anxiety during entrepreneurial pitches in our research seems to affect judgments less than in other contexts (e.g., Mulac & Wiemann, 2009).[5] One reason for this difference could be that investors understand that a successful pitch could be life-changing for entrepreneurs and therefore some anxiety is acceptable and may even be expected. A comprehensive examination of the effect of displayed anxiety on pitch performance is beyond the scope of the current research, but it may be an interesting area for future research.

The current studies compared the effectiveness of linking anxiety to passion with a set of the most thoroughly researched strategies, all of which are included within the theoretical framework of the process model of emotion regulation. However, future research could explore other strategies, including meditation and deep breathing (Loehr & Schwartz, 2001), or explore combinations of strategies, such as meditation on the day of the pitch but linking anxiety to passion in the moments immediately prior to pitching.

Finally, future research could also explore other consequences of linking anxiety to passion. For example, linking anxiety to passion may produce less emotional exhaustion than suppression because the latter requires constant effort to modify emotional expressions (Richards & Gross, 2000). Also, recent research indicates possible downsides of displaying passion during pitches, when investors attribute displayed passion as an inauthentic impression management strategy (Jiang et al., 2022). That said, because linking anxiety to passion involves changing inner thoughts and feelings rather than merely modifying external displays, it may lead to more authentic emotional displays than suppressing emotions or faking positive ones.

7. Conclusion

Drawing from the process model of emotion regulation and building upon evidence that investors look for entrepreneurial passion in pitches, we introduce linking anxiety to passion, a new form of positive reappraisal that helps entrepreneurs boost pitch performance. Rather than attempting to deny or override anxiety, linking anxiety to passion leverages similarities between anxiety and passion to make entrepreneurs' passionate feelings salient in the

[5] OLS regression found a marginally significant effect of displayed anxiety on funding potential evaluation when controlling for competition site and year, gender, and age, B = -0.164, SE = 0.094, p = 0.084.

moment. This work also contributes to emotion regulation research by recognizing a context-driven opportunity to demonstrate that debilitating emotions can be used to upregulate positive emotions and improve performance in the high-stakes situation of entrepreneurial pitches.

CRediT authorship contribution statement

Lily Yuxuan Zhu: Writing – review & editing, Writing – original draft, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Maia J Young:** Writing – review & editing, Supervision, Resources, Methodology, Conceptualization. **Christopher W. Bauman:** Writing – review & editing, Supervision, Resources, Methodology.

Declaration of competing interest

None.

Data availability

Data will be made available on request.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jbusvent.2024.106421.

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