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ABSTRACT

Many reward-based crowdfunding platforms encourage entrepreneurs to introduce their projects and make a personal appeal with a video clip. In this study, we investigate the impact of such a pitch video on financing outcomes. Grounded in social perception literature, we propose that effective use of nonverbal cues in a pitch video increases funding success. We coded and analyzed videos of crowdfunding campaigns and found that an entrepreneur could improve the funding outcomes by gazing less, appearing early, and reducing speech hesitations in a pitch video. We also found that smiling has no impact on funding success.

KEYWORDS: crowdfunding, nonverbal cues, pitch videos, social perception, funding outcomes

1. Introduction

Crowdfunding has emerged, in recent years, as an alternative platform to traditional financing sources [1]. Even though both traditional financing and crowdfunding can be viewed as a persuasion process where entrepreneurs present their opportunities to investors/funders to convince them of the merits of their business potentials [2], crowdfunding has a few unique features. First, crowdfunding tends to attract a larger number of amateur funders, each providing a smaller amount of funds than traditional financing. Compared with traditional investors who mainly aim for economic returns, crowd-funders are primarily motivated by social considerations and they tend to demonstrate prosocial behavior [3]. Second, unlike traditional financing that often involves intensive interactions between investors and entrepreneurs, crowdfunding is essentially a one-way communication in which funders passively receive information presented by project founders. Thus, crowdfunding outcome is largely determined by how effectively entrepreneurs use the crowdfunding platform to communicate. We summarize the major differences between traditional financing and crowdfunding in Table A1.

Among many elements in a crowdfunding campaign, the video clip is the most important one. Mollick [1] shows the necessity of video clips in crowdfunding and states that skipping the video does "a serious disservice to your project". Similarly, Kickstarter.com urges entrepreneurs to have a pitch video on their campaign webpages and suggests that "there are few things more important to a quality Kickstarter project than videos." However, few studies have systematically examined the impact of pitch videos on crowdfunding outcomes. Although Mollick's exploratory work [1] provides initial evidence on the impact of pitch videos in crowdfunding, the question of *how* pitch videos affect crowdfunding outcomes remains unanswered. Particularly, because a pitch video is a rich medium with various components such as nonverbal cues, the understanding of the impact of those components at a more granular level provides insight into creating an effective video to maximize the benefits.

Grounded in social perception literature, we contend that an effective use of nonverbal cues in a crowdfunding campaign pitch video positively impacts funding success. We refer to funding success as founders reach their funding goals. Many reward-based crowdfunding platforms such as Kickstart adopt an "all-or-nothing" funding policy, under which entrepreneurs can keep the funds they raise only if they reach or exceed the funding goals; otherwise, funds will be returned to funders. Our focus on nonverbal cues is motivated by the following reasons. First, nonverbal cues, which account for more than 60% of communication, are more prevalent and salient than verbal cues in interpersonal interaction [4]. In face-to-face communication, people use nonverbal cues to form their impressions and to make inferences about others' attitudes, emotions, personalities, and dispositions, and their perceptions subsequently influence their decisions and behaviors. However, research on nonverbal cues in online settings is scarce and the understanding of the extent to which those findings hold in virtual communication is lacking. Particularly, given the differences between traditional financing and crowdfunding, whether effective use of nonverbal cues in a pitch video can make a difference in crowdfunding outcomes remains unexplored.

Second, finance and entrepreneurship literature suggests when facing uncertainty, time constraint, and limited resources, investors rely on shortcuts to make decisions [5, 6]. Particularly, investors use nonverbal cues to evaluate entrepreneurs, their products, and their companies. Blankespoor, Hendricks, and Miller [7] found that investors form perceptions of a company's management based on its CEO's nonverbal cues and other dynamic behaviors

displayed in a roadshow presentation and that they incorporate them in their assessment of the firm IPO values. Mayew and Venkatachalam [8] showed that managers' voices in earning conference calls are useful information and are used by analysts in forecasting firms' near-term earnings. The impact of cue utilization is more pronounced in crowdfunding where the market and product-related information is rarely available and unreliable [9], and funders are often amateur investors who lack resources, knowledge, time, and incentives to thoroughly evaluate the project of interest [10]. Hence, they are more likely to decide based on their feelings or impressions rather than an objective assessment of the projects. Recent empirical studies have confirmed that funders make their funding decisions using subtle or even seemingly trivial cues, including facial appearance [11], similarity in gender, occupation, or even the first name initials [12], and unverifiable information [13, 14].

In this study, we propose that nonverbal cues in pitch videos affect the funding success rate. Using campaign data collected from two categories of Kickstarter.com, we investigate how funding outcomes could be influenced by five nonverbal cues—eye gaze, smile, speech hesitation, time to appear, and attire. Our analyses show that nonverbal cues provide substantial diagnostic information about entrepreneurs that is above and beyond traditional information. Our findings suggest an entrepreneur could improve funding outcomes by gazing less, appearing early, and reducing speech hesitations in a pitch video.

Our study makes the following contributions to theories and practices. First, it contributes to a growing body of crowdfunding literature by investigating how a pitch video maximizes crowdfunding campaign effectiveness, and it complements prior research that primarily focuses on the effect of narratives or verbal cues on funding success [15-17]. The understanding of using videos not only helps entrepreneurs to communicate to potential funders more effectively but also enables crowdfunding platforms to design tools facilitating communication [15-17]. Second, our study extends social perception literature to crowdfunding by showing that information gathered from nonverbal cues is influential and affects people's behavior and decisions. We also discover that some effects of nonverbal cues are different from those in face-to-face communication. For instance, eye gazing is often viewed as positive in a face-to-face setting, but our research shows the opposite effect in crowdfunding. In addition, while a smile often plays a critical role during in-person interactions, we find that it makes no difference in crowdfunding. Third, our study contributes to the literature on computer-mediated

communication. While most studies suggest that video-based communication channels are superior to audio and text-based channels [18, 19], this study bridges the gap by studying how nonverbal cues, which are used exclusively in video communication, can affect the persuasiveness of messages and presentations.

2. Theoretical Foundation and Hypotheses

2.1. Crowdfunding literature

We reviewed the most recent (from the year 2014 when Mollick [1] published his seminal paper) and influential studies investigating crowdfunding. As summarized in Table A2, funding success has been found to be related to various factors, such as the number of backers and percentage of early target capital pledged [20], project quality and geographic factors [1], intellectual capital [21], funding goal and project duration [22], forms of crowdfunding [23, 24], social capital and networks [1, 20, 25], national culture [25], and trust [26].

Our literature review reveals several gaps that are relevant to our research. First, overwhelmingly, scholars view crowdfunding as an economic activity or a social phenomenon [20], examining how founders are driven by financial returns or social and cultural factors. However, how the funders' impression of entrepreneurs affects their funding decision has received less attention. Second, current crowdfunding literature has focused more on entrepreneurs' characteristics, but research on their virtual communication has been scarce. Third, while there is a growing interest in exploring the effects of verbal cues in crowdfunding [15, 16, 27, 28], nonverbal cues remain overlooked.

2.2. Crowdfunding and traditional financing

Crowdfunding can be defined as "the efforts by entrepreneurial individuals and groups (cultural, social and for-profit) to fund their ventures by drawing on relatively small contributions from a relatively large number of individuals using the Internet, without standard financial intermediaries" [1]. To launch a crowdfunding campaign, entrepreneurs need to create a campaign webpage on crowdfunding websites,[1] briefly describing their projects and setting a funding goal. Funders can view all campaigns and make financial contributions based on their

[1] Entrepreneurs are also referred to as founders, creators, or initiators in crowdfunding literature. We use these terms interchangeably in this study.

evaluations.[2] Crowdfunding expands entrepreneurs' reach to potential funders who otherwise remain inaccessible. The growth of crowdfunding is at an exponential rate. Billions of dollars have been raised throughout more than 600 worldwide crowdfunding platforms [29].

Despite its ease of use, crowdfunding poses challenges to both funders and entrepreneurs. On one hand, funders face uncertainty, information asymmetry, and moral hazards [30]. First, most crowdfunding websites provide only limited information on campaigns, so the funders have to rely on entrepreneurs' self-disclosed information to assess the quality and risks of the projects [31]. Second, crowdfunding funders might not possess the expertise or knowledge on projects listed on crowdfunding websites, nor do they have the resources to conduct a thorough and systematic review on the entrepreneurs or their ventures [20]. Third, most crowdfunding websites use a reward-based model in which funders only receive products or services instead of stock ownership, so there is no legal guarantee that the funded project will be completed, the product will be delivered on time, or even whether the raised funds will be used appropriately [32, 33]. On the other hand, while crowdfunding lowers the bar for reaching out to more funders, it is difficult for a project to stand out among many campaigns competing for funders' attention and funding. In addition, the lack of face-to-face interaction impedes entrepreneurs' efforts in persuading funders and winning their support [15].

The screening and evaluation of entrepreneurs and their ventures have been studied in both traditional financing and crowdfunding settings. Literature on traditional financing literature suggests that entrepreneurs can use a range of signals to show their credentials and venture legitimacy [34], including entrepreneur's education and experiences [35], certifications and endorsements [36], social capital [37], affiliation to other organizations, and storytelling and argument [38]. These signals are costly to obtain or replicate, and thus, they can highlight the underlying quality of their ventures. In contrast, crowdfunding studies have focused on social or contextual cues that have an impact on investors' impression and feeling, including facial appearance [11], similarities between lenders and borrowers [12], voluntarily disclosed personal information [13], national culture [25, 39], geographical locations [39-41], and peer opinions [42].

[2] Funders are also referred to as backers, supporters, or investors in crowdfunding literature. We use these terms interchangeably in this study.

Additionally, literature on traditional financing suggests that investors do not always use objective information to make rational decisions. Rather, because of uncertainty and time pressure, they often use instinct, shortcuts, heuristics, and even gut feeling in investment decision-making [43]. As a result, they can be swayed by less substantive information such as managers' voices [8], entrepreneurs' symbolic actions [44], or the format of a business plan [6]. Subtle information plays a more important role in crowdfunding, given the fact that verifiable objective market and product-related information is unavailable [9], and funders lack resources and expertise to thoroughly examine them [10]. Some recent studies on crowdfunding suggest that subtle or even seemingly trivial cues influence funders' funding decisions. For example, Michels [14] observes that "the tendency of people to rely on false or irrelevant information in decision making has been well established in psychology. People behave as if their first reaction is to believe any information they are presented with" and in crowdfunding even "uninformative material can significantly affect behavior". Similarly, Herzenstein, Sonenshein and Dholakia [13] contend that in peer-to-peer lending seemingly irrelevant information "affects lending decisions above and beyond the influence of objective, verifiable information".

Among those subtle cues, literature on traditional financing implies that nonverbal cues have a profound impact on investment decisions. For example, Blankespoor, Hendricks, and Miller [7] study relationships between CEOs' performance in roadshow presentations and their companies' IPO prices. They suggest that "valuable information about management is conveyed through their nonverbal behavior". Similarly, Chen, Yao, and Kotha [2] argue that passion, an important success factor for entrepreneurs, is often "manifested through facial expressions, body movement, tone of voice, and nonverbal cues." However, despite the importance of nonverbal cues, a systematic investigation of their direct effects on funding decisions is scant. One reason for this gap is that many studies in traditional financing rely on surveys or student pitch competitions rather than direct observations of entrepreneurs' pitches to investors. The use of self-reported measures or student samples limits their investigations. In contrast, pitch videos in crowdfunding provide us a unique opportunity to decode nonverbal cues entrepreneurs use to persuade funders and examine their impact on funding outcomes.

2.3. Social Perception

Social perception literature is rooted in social psychology and it studies how people (perceivers) form their impressions and make a judgment towards others (targets) based on

external stimulus information [45, 46]. Such information as nonverbal cues often reveals a range of attributes associated with the targeted population, including their traits, disposition, attitudes, emotional states, and intention, which, in turn, affect perceivers' behaviors and decisions [45, 46]. The occurrence of social perception has been supported by evidence in neuroscience, which discovers that exposure to nonverbal cues and other facial expressions dramatically increases activities in the amygdala, a subcortical brain region performing the functions of forming impressions and judgments [47], and by the ecological perspective suggesting[46] that social perception reflects evolutionary pressures that like other social animals, during encounters with conspecifics, people must determine immediately others' intentions and ability to act on those intentions [48].

Social perception literature suggests that people form the first impression rapidly and it has a persistent and profound impact on their subsequent behaviors. Studies show that people can quickly extract information from nonverbal cues and make a trait inference, after extremely brief exposure (as short as 500 milliseconds) to unfamiliar faces [49]. Moreover, judgments made with limited exposure time are highly correlated with judgments made in the absence of time constraints. In addition, social perception occurs spontaneously, automatically, and unconsciously, so perceivers often form their impression and make an inference of targets without awareness and intention [50]. Thus, not surprisingly, people's decision-making process can be influenced by subtle and even trivial cues, although they are supposed to be more rational or deliberate. For example, Todorov, Mandisodza, Goren, and Hall [51] show that inferences of competence based solely on facial appearance can correctly predict nearly 70% of U.S. congressional election outcomes. Gomulya, Wong, Ormiston, and Boeker [52] find that following a financial restatement, companies are more likely to select CEOs whose facial appearance conveys greater integrity.

In the context of crowdfunding, we argue that when watching a pitch video, funders extract information from nonverbal cues and other expressions within a short period, and they use the information to form their impressions and make a judgment on the entrepreneur's traits, disposition, intention, and other attributes such as competency, intelligence, likability, and trustworthiness. Although social perception occurs rapidly and most time unconsciously, it has a substantial impact on funding decisions.

2.4. Nonverbal Cues and Crowdfunding

Nonverbal cues refer to a variety of non-spoken or non-written subtle cues including facial expressions, body movements, gestures, and physical attractiveness. Nonverbal cues are estimated to account for more than 60% of communication in interpersonal interaction, containing rich sensory information and being constantly observable [53], so they play a more important role than verbal cues in impression formation.

Scholars have revealed that nonverbal cues hold several functions [53]. First, nonverbal cues exhibit personal attributes, such as personality, attitudes, and intention. Second, nonverbal cues, such as eye contact can signal power, dominance, and status. Third, nonverbal cues foster high-quality interpersonal relationships and build rapport and trust. Fourth, the use of nonverbal cues can promote social functioning including followership, coordination, and prosocial behavior. Finally, nonverbal cues reveal people's emotions and affection [53].

The ability to decode nonverbal cues is critical to a person's social interactions. An accurate judgment made from nonverbal cues helps people build satisfying relationships with others and avoid potentially harmful interactions [54]. People may also purposely alter their nonverbal behaviors to make a more favorable impression. While some nonverbal exhibitions, such as those driven by emotions, are spontaneous and unregulated, others can be learned, practiced, and controlled. Therefore, people can exert some control over their nonverbal expressive behaviors in social interactions. Indeed, most adults possess the skills to regulate their nonverbal behaviors, and their regulations are guided by social norms or their personal goals, such as self-promotion and self-monitoring [55].

Researchers have been using "thin slices" methodology to investigate how people decode nonverbal cues to draw inferences about others. A thin slice is defined as a "brief excerpt of expressive behavior sampled from behavioral stream" [56], and the length of thin slices is "less than 5 minutes and typically close to 30 seconds" [57]. Thin slices contain rich diagnostic information related to a target's internal states such as personality, motives, and social relations. Although the window of thin-slice observations is relatively small, studies have shown that evaluations made based on them are remarkably accurate and reliable [58, 59]. For example, impressions formed based on 30-second observations of nonverbal cues are not significantly different from those based on 4- or 5-minute observations [60]. Following the thin slices methodology, our analysis of founders' nonverbal cues focuses on the first 30 seconds of crowdfunding videos.

Nonverbal cues in a crowdfunding pitch video may be equally or more salient than verbal cues such as campaign descriptions. While verbal cues explicitly express the messages, nonverbal cues illustrate, clarify, and reinforce the conveyed messages [61]. Nonverbal cues are particularly important when people lack the cognitive capability or resources to process the information and, thus, are more likely to form their judgments based on impressions and contextual cues [62]. In the context of crowdfunding, due to the lack of interaction with entrepreneurs and the fact that funders may not possess the knowledge and expertise to fully comprehend all information in a campaign description, funders would seek nonverbal cues to assess the entrepreneur's personal attributes. As a result, effective use of nonverbal cues by entrepreneurs in pitch videos creates favorable perception and impression and, in turn, increases funding success.

2.5. Pitch videos in crowdfunding

Video is preferred over other media in communication under high uncertainty and equivocality due to its vividness and interactivity [18]. Videos provide sensory information, which attracts viewers, engages them, evokes affect, and presents communicators' characteristics [63]. With the development of streaming technologies, increases in network bandwidth, and proliferations of mobile devices, videos are increasingly used for information sharing, knowledge dissemination, and product promotion [64, 65]. Particularly, major crowdfunding websites such as Kickstarter have adopted video communication and strongly encourage entrepreneurs to include pitch videos in their crowdfunding campaigns. This practice is supported by evidence that a pitch video could significantly increase crowdfunding success [1]. However, despite its importance, there is little research examining *how* a pitch video affects crowdfunding outcomes, nor does any specific guideline exist on how an effective pitch video can be crafted to evoke positive social perception. As a result, our review of crowdfunding campaigns at Kickstarter reveals that the focus and style of pitch videos vary.

In this study, we argue that although video communication has the potential to influence social perceptions, simply adopting its format does not guarantee success. Particularly, the crowdfunding pitch video is essentially a one-way communication and funders can only passively view the video, so its effect depends on how entrepreneurs create and deliver the content. Therefore, to maximize the impact of pitch videos, founders should effectively utilize nonverbal cues, a unique feature in video communication, to increase funding success.

2.6. Hypotheses

Generally speaking, nonverbal cues can be classified as "dynamic, static and paralinguistic" [66](p181). Dynamic cues refer to body movements including, but not limited to, gestures, eye contact, and smiling. Such nonverbal behaviors can be easily modified to convey powerful messages. Sometimes they can even supersede verbal communication [53]. Static cues consist of demographic variables (gender and race) and physical attractiveness (appearance and attire). Such cues are important in business decision making. Paralinguistic cues consist of communication cues through the use of time such as when to appear in a video [53].

Next, we examine the impact of five nonverbal cues from the above three categories on funding outcomes. Specifically, we study eye gaze and smile (dynamic cues), speech hesitation, time for a founder to appear (paralinguistic cues**),** and professional attire (static cue). We choose the five nonverbal cues because of the following reasons. First, they have been used to represent the three categories in social perception literature [67] and have been found to have a significant impact on communication outcomes [53, 68]. Second, in a pitch video, these nonverbal cues are noticeable to potential funders whereas other nonverbal cues are either unobservable (e.g., some gestures) or inapplicable (e.g., physical proximity) in online settings. Third, these nonverbal cues can be relatively accurately measured in crowdfunding. In contrast, the perception of other nonverbal cues such as voice volume and voice pitch may depend on how the pitch videos are played.

Dynamic Cues—Eye Gaze and Smile

Eyes are the window to the soul, and they reveal people's internal states including their intention and emotion. Eye gaze refers to looking at the other individual's eyes or faces [69]. In this study, we focus on the intensity of eye gaze, which is captured by the ratio of eye gaze length to the total length of a speakers' appearance in the video. Previous studies on face-to-face communication suggest that eye gaze could lead to positive evaluations of a person, and has been associated with credibility, competence, perceived social presence, and social skills [69, 70].

However, we argue that eye gaze may be interpreted differently in online crowdfunding settings. Research has shown that the positive effect of eye gaze in a video on its viewers is less significant than the effect of direct eye contact on participants during in-person communications. Indeed, intensive and overlong eye gaze [71] in videos is considered intimidating and offensive and can make people feel uncomfortable [72, 73,74,75]. In addition, excessive eye gaze from the

presenter may make the funders perceive the video as static and dull, and the presenter as unnatural and tense. Further, it may even distract funders from focusing on other relevant and important information in the video. Those negative feelings could lead to an unfavorable view of the whole project, which in turn influences funding outcomes. For those reasons, we propose the following hypothesis:

H1: Eye gaze in a crowdfunding video negatively affects funding success.

Smiles are often interpreted as a positive feeling/emotion [76] and as one of the universal nonverbal cues for effective communication [77]. A smile can give the impression of friendliness, interpersonal attraction, happiness, and likability, which will lead to a positive evaluation of the person as intelligent, nice, pleasant, and bright. In business settings, smiling is linked to expertise, confidence, competency, and credibility [69], and is considered as one of the elements for entrepreneurial passion [2]. In addition, smiling can increase the level of closeness between an entrepreneur and a funder in a crowdfunding campaign, and funders are more likely to experience a high level of social interaction [78]. Prior studies have shown that entrepreneurs possessing these characteristics are more likely to be viewed by investors as optimistic leaders with strong impersonal and social skills and thus have a better chance to get funded [2]. We therefore propose:

H2: Smiling in a crowdfunding video positively affects funding success.

Paralinguistic Cues—Speech Hesitation and Time to Appear in a Video

Speech hesitation, defined as an involuntary disruption in the flow of speech, often sends negative signals to message receivers [69]. Speech hesitation in a video may imply that the presentation is not persuasive and is regarded as boring in nature, which reduces likeability or ability to convince [69]. Hosman and Wright [79] argue that hesitations indicate less credibility, less authoritativeness, and less attractiveness. Leigh and Summers [69] discover that speech hesitations tend to create social absence and are negatively related to persuasiveness and interestingness. Mehrabian [80] suggests that speech hesitation may be an indication of anxiety and interpersonal discomfort. DeGroot and Gooty [66] state that unintentional hesitations might distract the audience, hence making the presentation less appealing. In addition, speech hesitations in a campaign video may suggest that the founder is nervous, less confident, and even uncertain and unprepared, which consequently could raise questions about the founder's ability and venture's quality. Conversely, less speech hesitations enhance funders' confidence in the

founder' knowledge and competence, which, in turn, has a positive impact on their perceptions of the product and venture quality. Based on the above arguments, we have the following hypothesis.

H3: The number of speech hesitations in a crowdfunding video negatively affects funding success.

Entrepreneurial funding decisions are usually made based on the proposed product, potential market, and the founding team [2]. Among these factors, the entrepreneur is considered the most critical in securing successful financing [81]. For example, Sandberg, Schweiger, and Hofer [82] found entrepreneurs outweigh products in financing decisions. Chen, Yao, and Kotha [2] found some venture capitalists invest in people rather than ideas or products. Particularly, when viewing a crowdfunding video, it might be more intuitive for funders to use their experiences and instincts to judge the trustworthiness and competency of an entrepreneur than to evaluate the quality of a product of which they may have little knowledge and expertise. Appearing earlier in the video may send a signal that the entrepreneur is eager to actively engage the funders and earn their trust. In addition, previous studies show that online video viewers have a short attention span, and their interests and focuses fade as the video plays on [83], so founders that appear earlier in the video are more likely to make a strong impression than those who appear later. Finally, appearing early in the video may make the founder be perceived as confident and passionate, which in turn makes the rest of the video more credible and personal. We hence provide the following hypothesis.

H4: The early appearance of an entrepreneur in a crowdfunding video positively affects funding success.

Static Cues—Professional Attire

As one of the most important static cues, physical appearance is found to be associated with a positive evaluation of the presenters and persuasive outcomes [84]. Argyle [85] regarded physical appearance as individuals' self- presentation efforts that affect not only their confidence and self-esteem but also others' perceptions and evaluations towards them. Particularly, dressing in professional attire may enhance one's trustworthiness, credibility, authoritativeness, and social status, because professional attire signals professionalism and maturity [69]. Furthermore, attire is one of the first cues visible to communicatees. Unlike other nonverbal cues, attire is associated with the entrepreneur throughout the entire communication. Thus, it could affect impression and

judgment. We argue that wearing professional attire in the video presentation strengthens the image of the entrepreneur, sends positive signals to funders, and increases the likelihood of obtaining the required financing. We hence propose the following:

H5: Professional attire in a crowdfunding pitch positively affects funding success.

3. Method

3.1. Study context

To test the hypotheses, we collected data from Kickstarter.com. Launched in 2009, Kickstarter serves as one of the most prominent global intermediary platforms between entrepreneurs and funders. As of September 2020, Kickstarter had received over $5.3 billion from 65 million pledges to fund 188,218 projects [86].

Kickstarter uses a reward model to provide incentives to funders in exchange for their financial contributions. Based on the level of funders' pledges and the thresholds set by the entrepreneurs at the launch of their campaigns, funders are awarded by entrepreneurs with a variety of items ranging from a small gift such as a T-shirt and a signed picture to a more valuable item such as the finished product. Launching a crowdfunding campaign at Kickstarter only takes a few steps. Entrepreneurs need to upload a pitch video, provide a short description of the project, set a funding goal and a funding expiration date, and specify the details of rewards and levels of contributions eligible for receiving them. Kickstarter creates a webpage for each campaign to display information and track funding progress (Please see Figure 1 for an example).

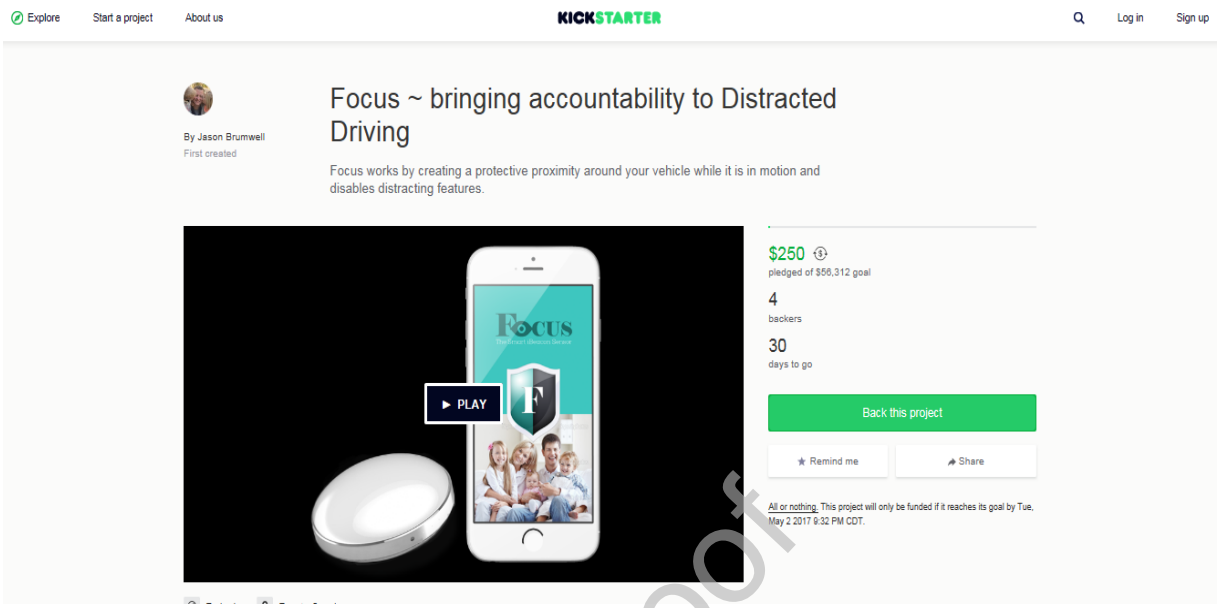

Figure 1. An example of Kickstarter's crowdfunding campaign webpage

Kickstarter is an ideal platform to test our hypotheses on nonverbal cues in pitch videos because a video is one of the most important components of a crowdfunding campaign webpage [1]. Entrepreneurs are advised by Kickstarter's handbook that funding projects without a video "have a much lower success rate". In addition, the pitch video is displayed at the most noticeable position on the campaign webpage to ensure its visibility to funders.

3.2. Data Collection

Kickstarter divides all projects into several categories. Our data collection focuses on two such categories: technology and film & video. These two categories represent distinct campaigns in the spectrum of crowdfunding in terms of themes (science and engineering vs. liberal arts) and entrepreneurs (engineers vs. artists). They are the most funded categories at Kickstarter and have been studied in previous literature [1, 87]. In addition, limiting our investigation to only two categories can reduce the heterogeneity that may exist across different categories. For example, some categories may be less popular than others and thus may be less successful in raising funds. Such systematic differences may bias our data analysis. Limiting the number of categories studied can alleviate this concern.

We selected our sample by first obtaining 1,007 links to all ongoing technology and film & video campaigns. We then sorted the campaigns based on their positions on Kickstarter and used systematic sampling by selecting every fourth campaign into our sample. Kickstarter website by default displayed four campaigns at each row at the time of our data collection, and

this sampling method ensured our sample represents campaigns posted on different rows and pages. If a selected campaign did not have a video (35 campaigns) or had a video with more than one speaker in the first 30 seconds (11 campaigns), the next one was chosen. We restricted our sample to those with a single speaker in the first 30 seconds of the pitch video and excluded campaigns with multiple speakers. This was done because multiple speakers might have varied communication skills and used diverse nonverbal cues; therefore, funders might focus on and be influenced by different speakers when viewing the video, which might make accurate and consistent measuring nearly impossible. Lastly, we removed a campaign with a funding goal of 100 million dollars, which was far beyond the range of normal crowdfunding campaigns and thus was considered as an outliner. Our final sample contains 205 campaigns. We note that our sample size is similar to that of recent research studying crowdfunding [21, 88] or examining nonverbal cues in videos [7, 81, 89, 90]. We also conducted a *post hoc* power analysis in Appendix E showing our sample size is sufficiently large to detect any small observed effect size. Next, we visited each campaign webpage to extract data on independent and control variables. Finally, we waited until the completion of the crowdfunding campaigns and revisited their web pages collecting data on funding success, the dependent variable. Doing so reduces potential bias and facilitates the inference of causality.

3.3. Dependent Variable

We used a dummy variable to measure the funding success of a campaign. A campaign was considered successful if it reached or exceeded its funding goal. This measure reflects Kickstarter's all-or-nothing policy and is consistent with previous studies [1]. We also used several alternative continuous measures for funding success in robustness checks, and the results remain the same and are summarized in Table D1.

3.4. Independent Variables

The five independent variables on nonverbal cues were collected by analyzing and coding each pitch video embedded in campaigns' webpages, and the coding procedure is detailed in Appendix A.

Eye Gaze. We considered a speaker directly and straightly looking into the camera as eye gaze because it is like eye contact in face-to-face interaction. In our coding, we found that some speakers were wearing sunglasses in the video although they faced the camera during their appearances. We did not count those moments because the speaker's eyes were invisible to video

viewers (We also treated them as missing values in our robustness test and the result is consistent). Finally, we measured this variable by dividing the eye gaze length by the total length of a speaker's appearance.

Smiling. Smiling includes a broad range of facial expressions. Since we treated smiling as a nonverbal cue in this study, we considered only those expressions that were noticeable and perceivable to video viewers. As a result, we counted an expression of pleasure in which the speaker had the corners of the mouth turned up or the front teeth exposed as a smile [91]. We also noted that the pronunciation of certain English words (such as "cheese") resembles the expression of a smile; therefore, we excluded facial expressions associated with those words. We counted the total time a speaker spent on smiling and divided it by the total time of a speaker's appearances as the measure of smiling.

Timing of Appearance. We operationalized the variable of time for the speaker to appear as the elapsed time from the beginning of the video until the speaker appeared. We considered a speaker's appearance as when any part of his/her body could be seen in the video.

Speech Hesitation. We counted the number of times a hesitation occurred during a speaker's speech in the first 30 seconds of the video. Following Kheyrandish, Setayeshi, and Rahmani [92], we identified three types of hesitations including (1) fillers (such as "Uh", "Um", "Eh", and "Ah") that have no efficient information, (2) discourse markers (such as "I mean", "I think", "You know", "Well", and "Actually") that act as prefaces for next utterance and could be removed without affecting the speech, and (3) explicit editing terms (such as "sorry", "no", and "oops") that are neither fillers nor discourse markers. We counted all hesitations that lasted for more than one second in the speaker's presentation and had a detectably disruptive impact on his/her speech fluency.

Professional attire. We used a categorical variable to measure a speaker's professional attire. A male's professional attire was coded 2 (formal) if the speaker in the video was wearing a suit with a pure and light-colored shirt (mainly in white or blue). A female's professional attire was coded 2 when she was wearing long dresses, suits, or light-colored shirts. Traditional apparel of different countries or cultures such as Kimono and Indian traditional costumes were also considered formal and coded 2. A speaker's attire was deemed semi-formal and coded 1 if it had collars and sleeves. All other attires were considered informal and coded 0.

3.5. Control variables

We included entrepreneur characteristics, video characteristics, and project characteristics as control variables to mitigate confounding effects.

Entrepreneur Characteristics. Previous studies suggest that crowdfunding reduces barriers for female entrepreneurs in raising capital and women outperform men in terms of funding success rates [93]. Therefore, we included a dummy variable to control for the gender difference. In addition, as most projects in our sample were launched by entrepreneurs in the United States, we used a dummy variable to control US-based campaigns vs. non-US-based ones [1, 39, 40]. Further, we included the number of previous crowdfunding campaigns an entrepreneur launched at Kickstarter to control for his/her crowdfunding experience and the learning effect. Finally, to account for any reciprocal relationships between entrepreneurs at Kickstarter who might engage in mutual friend support to boost both campaigns [10], we included the number of other campaigns supported by the founder as a control variable.

Video Characteristics. We used four variables to control for the quality of the video. The first variable is *video clarity*, which was rated by the coders on a three-point scale with 0 as low clarity videos that had some blurred images due to factors associated with lighting, angle, distance, focus, or movement; 1 as medium clarity videos that had only a few blurred images; and 2 as high clarity videos that had clear images throughout the entire video. The second variable is *video vividness*. This variable was coded 1 if a video was edited to include features such as multiple backgrounds and scenes, animations, captions, and tables; otherwise, it was given a value of 0. The last two variables were the total duration of music played in the background and the number of pictures displayed, during the first thirty seconds of the pitch video.

In addition, while in our sample only one single speaker appeared in the first 30 seconds, more speakers might appear later in some videos. To control for any confounding effect it might cause, we counted the number of other speakers after the first 30 seconds and used it as another control variable.

Project Characteristics. We also included other project characteristics except for those related to entrepreneurs or videos. First, the *novelty* of a project may affect investors' interest and is critical to campaign success. Therefore, we coded it as a control variable. Two coders read the descriptions of all projects and coded them on a 3-point rating scale (2 represents highly novel; 1 represents somewhat novel, and 0 represents low novel). Projects with a more novel, creative,

and innovative idea were assigned higher scores. Also, projects whose descriptions included words signaling their novelty, such as "new", "first", "original", "outstanding", "fill the gap", and "differentiate from others", received higher ratings. Because most funders lack the expertise and other recourses to evaluate a campaign, previous studies using content analysis have shown that they tend to be influenced by linguistic cues embedded in the description when making their decisions[15, 16]. Second, we controlled for the *clarity* of the project description because it could affect how a project is perceived. Based on a 3-point scale, ranging from well communicated, somewhat communicated to poorly communicated, the two coders evaluated all campaigns based on whether their descriptions were clearly written, used any jargon, or included any pictures and diagrams for illustration. After the two coders independently reviewed all project descriptions for novelty and clarity,[3] their results were reconciled to ensure the difference between their ratings on any campaign is not greater than one. The average of their ratings was used for model estimation. We also included two other variables to account for the effect of linguistic characteristics of project descriptions that may affect backers' evaluation of a campaign: readability and complexity of the description. The readability variable, measured by Gunning-Fog Index [94], represents how easily it can be read and understood. Readability is particularly important in crowdfunding where most backers are non-professional investors, who prefer plain language. Complexity, measured by lexical density, is the ratio of the number of lexical items (nouns, adjectives, verbs, adverbs) to the total number of words [95], representing how informative the description is.

Additionally, a founder needs to list the funding goal (target value) on the campaign webpage, which reflects both the project size and the founder's expectations [22]. We, thus, included the logarithm of the funding *target value* as a control variable. Moreover, Kickstarter uses a reward-based model in which funders receive different rewards depending on the level of their financial contributions. To account for the impact of incentives on funding outcomes, we controlled the level of contributions eligible for the *lowest* and *highest rewards* of a campaign. These two control variables reflect the scope of incentives provided by each campaign. Since some projects in our sample are located outside of the United States and use a currency other than the US dollar, the variables of the target value, lowest reward, and highest reward were

[3] The two coders were instructed explicitly that their coding of novelty and clarity should focus solely on project description and skip other information on the campaign page to avoid any bias.

converted to US dollars before data analysis. Lastly, we included a dummy variable to control for the two categories of our sample projects with technology coded as 1 and film/video as 0. We summarize the operationalization of all variables in Table1.

4. Data Analysis and Results

Seventy-six projects in our sample exceeded their target values and were consequently successfully funded, resulting in a 37% of success rate, which was close to the overall success rate of 38% reported by Kickstarter [86]. The maximum amount of funding received among all projects was US$1,368,177. Seventeen percent of the entrepreneurs in our sample were females and 79% of them were using Kickstarter for the first time. The descriptive statistics of our sample are summarized in Table C1 and the correlation matrix in Table C2.

4.1. Model Specification

We used a logistic regression model to estimate the effects of nonverbal cues on a campaign's financing success as follows.

$$ln\frac{\Pr(Success=1)}{1-\Pr(Success=1)} = X\alpha + Y\beta + \varepsilon \quad (1)$$

Where *Success* is a binary variable with 1 indicating a project was successfully funded and 0 otherwise. *X* denotes a set of five independent variables of interest including eye gaze, smiling, timing of appearance, speech hesitation, and professional attire. *Y* defines a set of control variables including entrepreneur, video, and project characteristics. To account for heteroscedasticity, robust standard errors were used in all regressions.

Table 1. Variable Definitions

Variable	Definition
Novelty	3-point rating scale (2=highly novel; 1=somewhat novel; 0=low novel)
DescriptionClarity	3-point rating scale (2=well communicated; 1=somewhat communicated; 0=poor communicated)
DescriptionReadability	Gunning-Fog Index of the description
DescriptionComplexity	The ratio of the number of lexical items to the total number of words in the description
FinancingSuccess	Dummy variable: coded 1 for a project which reached or exceeded its funding goal and 0 otherwise
NumberofSupporters	The number of funders who contribute to the project
TargetValue	Funding goal set by the entrepreneur for the project (unit: US dollar)

LowestBid	The amount of contribution qualifies for the lowest reward of a project (unit: US dollar)
HighestBid	The amount of contribution qualifies for the highest reward of a project (unit: US dollar)
CampaignCategory	Dummy variables; 1 for technology category and 0 for film & video category
Gender	Dummy variables; 1 for male and 0 for female
NumberPreProjects	The number of crowdfunding projects an entrepreneur had at Kickstarter previously
Location	Dummy variables; 1 for US and 0 otherwise
NumberSupportedProject	The number of other campaigns an entrepreneur supported at Kickstarter
VideoClarity	3-point rating scale (2= No blurred image; 1= a few blurred images; 0=some blurred images)
VideoVividness	Dummy variable; 1 for videos with various features and 0 otherwise
MusicLength	The total duration of music played in the background during the first thirty seconds of the video
NumberOfPictures	The number of pictures displayed during the first thirty seconds of the video
EyeGaze	$\frac{\text{Duration of eye gaze in the first 30seconds}}{\text{entrepreneur's appearance duration in the first 30 seconds}}$
SmileDuration	$\frac{\text{The total time a speaker spent on smiling in the first 30 seconds}}{\text{entrepreneur's appearance duration in the first 30 seconds}}$
TimetoAppear	The elapsed time before the entrepreneur appears in the video
SpeechHesitation	The number of hesitations the entrepreneur had during his/her speech in the first 30-second of the pitch video
ProfessionalAttire	0 for informal attire, 1 for semi-formal attire, and 2 for formal attire

4.2. Results

The results summarized in Column (1) Table 2 include all control variables, and they show that campaigns with a more novel idea and clearer description are more likely to reach their funding goals. In addition, projects located in the United States are more attractive and successful than those in other countries, which might be attributed to the fact that the majority of

Kickstarter users are Americans who tend to contribute to projects close to them culturally and geographically [96].

Column (2) includes all five independent variables (nonverbal cues), and their impact on crowdfunding campaigns are summarized below.

Dynamic Cues. Our results support H1, showing eye gaze negatively affects financing success (β= -1.6055, $p<0.05$)—an increase in eye gaze by 1/100 leads to a 1.59% (=1-$e^{-1.6055/100}$) decrease in the odds ratio of being funded. We also propose that more smiling is associated with the funding success of a project (H2), but our results show the impact of smiling is nonsignificant. (β= 0.7793, $p>0.1$).

Paralinguistic Cues. We find that the number of speech hesitations in a video negatively affects financing success (β= -0.9322, $p<0.01$), which indicates reducing one speech hesitation could increase the odds ratio of a project's chance of being successfully funded by 60.63% (=1-$e^{-0.9322}$). Thus, H3 is supported. In addition, our results reveal that a delay of appearance in a video has a significantly negative effect on financing success (β= -0.0894, $p<0.1$). This suggests that a presenter's appearance later by one second in a video leads to a decrease in the odds ratio of fundraising success by 8.55% (=1-$e^{-0.0894}$). Thus, H4 also receives support.

Static Cues. We posit that professional attire is associated with better funding outcomes, but our analysis shows that wearing formal (β= -0.7304, $p>0.1$) and semi-formal (β= 0.2106, $p>0.1$) attire does not have an impact on financing success. Thus, H5 is not supported.

4.3. Robustness Checks

To check for the robustness of our results, we used a self-selection model to address endogeneity and re-estimated the model with alternative variables, alternative specifications, and sub-samples. In addition, we conducted a post hoc power analysis to assure our sample size is large enough. Finally, we explored moderating effects and nonlinear relationships between nonverbal cues and funding outcomes. The details of these additional analyses can be found in Appendix C through Appendix E.

5. Discussion and Implications

Successful entrepreneurial financing requires entrepreneurs' powerful persuasion ability [2]. Entrepreneurs who demonstrate their preparedness and passion about their venturing have a high probability of obtaining needed funding [97]. The entrepreneurial persuasion research has been

fruitful, though it has failed to examine the effect of nonverbal cues in an online setting [81]. We conducted a study to examine how nonverbal cues in crowdfunding videos may affect the campaign attractiveness and the final financing outcome. While we received confirmation that reducing speech hesitations and early appearance in the video increase the chance of getting the needed funding, we also found that the effects of some nonverbal cues on crowdfunding are different from those in face-to-face communication.

Table 2. Logistic Regression Results

Variables	**Model (1)**	**Model (2)**
Novelty	1.6005***	1.9637***
	(0.3458)	(0.3912)
DescriptionClarity	0.7900**	0.9981**
	(0.3540)	(0.4297)
DescriptionReadability	0.0984*	0.1223*
	(0.0531)	(0.0691)
DescriptionComplexity	-0.0170	-0.0219
	(0.0241)	(0.0267)
Log(TargetValue)	-0.6035***	-0.6694***
	(0.1966)	(0.2559)
Log(LowestReward)	0.1768	0.4293*
	(0.1981)	(0.2383)
Log(HighestReward)	-0.0371	-0.0464
	(0.1508)	(0.1572)
CampaignCategory	-0.6728	-0.5288
	(0.5239)	(0.6260)
Gender	-0.4120	-0.2651
	(0.6091)	(0.7343)
NumberPreProjects	-0.0255	-0.0282
	(0.1766)	(0.1574)
Location	1.2096**	1.7707***
	(0.4912)	(0.6549)
FundingPeriod	-0.0399**	-0.0370
	(0.0200)	(0.0239)
VideoClarity	0.9325***	1.0883**
	(0.3446)	(0.4253)
VideoVividness	0.2540	0.0865
	(0.4504)	(0.4840)

MusicLength	0.0285* (0.0162)	0.0297* (0.0177)
NumberOfPictures	-0.1379 (0.1064)	-0.1920 (0.1834)
NumberOtherSpeakers	0.0516 (0.1260)	0.0995 (0.1431)
NumberSupportedProject	0.0970 (0.1086)	0.0894 (0.1230)
EyeGaze		-1.6055** (0.6504)
SmileDuration		0.7793 (1.1987)
TimetoAppear		-0.0894* (0.0535)
SpeechHesitation		-0.9322*** (0.2736)
Attire (formal)		-0.7304 (0.6623)
Attire (Semi-formal)		0.2106 (0.4623)
Log pseudolikelihood	-89.4178	-79.4035
Pseudo R-squared	0.3362	0.4105

Notes. Robust standard errors are in parentheses.

*p<0.1; **p<0.05; ***p<0.01

Number of observations=205

First, contradicting our prediction, smiling has a positive but not significant impact on crowdfunding success. We attribute this finding to three possibilities. First, recent research suggests that while smiles lead to a higher perception of warmth, they may reduce the perception of competence [98]. Additionally, smile authenticity, rather than its intensity, has been found to influence the appraisal of performance [98]. The second possibility is that although smiling is generally viewed as positive, excessive smiling can be considered unnatural or even perceived as shallow or deceptive [69]. The third possibility is that our study focuses on two categories of crowdfunding campaigns: technology and film/video. The latter category includes some documentaries and reality movies, which are intended to cover serious social issues and have a suppressive style. Hence smiling in the pitch video may not always be proper for them.

Second, in contrast to our prediction, professional attire has no impact on funding success. We explain that in a less interactive setting such as a crowdfunding campaign, informal attire creates a casual and relaxing atmosphere and closes the psychological distance between the audience and the speaker [99]. Further, fundraising videos might be considered less formal than business meetings and, thus, professional attire could be perceived as overdressed and dull or even becomes a distraction [100]. Moreover, crowdfunding is designed for those who have limited access to capital through traditional means [87]. Hence, those dressed in professional attire may be regarded by funders as rich individuals who should seek financing through traditional means. Additionally, entrepreneurs have been increasingly seen wearing informal attire in their public appearances, as in the case of Steve Jobs and Mark Zuckerberg. Nowadays, wearing informal attire might be perceived as acceptable or even considered a new norm for entrepreneurs. Lastly, founders need to ensure the fit between their attires and the projects/products they promote in the video. For example, a casual attire may match the content better when the founder is presenting an entertainment-related project.

5.1. Theoretical implications

The current paper makes a few contributions to both theory and practice. First, some scholars have viewed entrepreneurial financing as a process of persuasion [2, 100], which requires entrepreneurs to have excellent communication skills and social competence [101]. With a majority of meanings in communication being conveyed via nonverbal cues, our study expands entrepreneurial financing research by showing the effect of those cues on the persuasiveness of the messages [100, 102]. Our results also suggest that more research is needed to understand the use of nonverbal cues in entrepreneurial financing decisions, especially the differences between traditional financing and crowdfunding.

Our research contributes to crowdfunding literature that increasingly focuses on the impact of subtle contextual or social cues on funding success. For example, Burtch, Ghose, and Wattal [39] found cultural and geographical distances influence lenders' financial support decisions. Duarte, Siegel, and Young [11] reported that borrowers' appearances play a role in determining their chances of being funded. However, the cues discovered in previous studies are more static and persistent, and borrowers or founders have little control of them in a crowdfunding campaign. In contrast, our study includes some alterable and dynamic cues founders can adjust or change in a short period, suggesting that entrepreneurs can influence their

funding outcomes by strategically and effectively utilizing nonverbal cues in pitch videos. Our study is also related to the debate on information technology's capacity in transmitting "soft" information. Finance literature on small business lending [103] argues that soft information (information collected over time through personal relationships and interactions) is hard to be collected by information technology (IT), although IT facilitates the transmission of hard information (quantitative information that could be documented or recorded). In contrast, recent IS literature on peer-to-peer lending [42] shows that IT can develop and deliver new sources of soft information, such as information on friendship, to support lenders' funding decision making. This study adds new evidence in supporting information technology's soft information collection capability, showing nonverbal cues embedded in crowdfunding pitch videos can inform funders and affect funding outcomes.

Third, this study contributes to a growing body of literature on user-generated content that largely focuses on text-based media such as posts, blogs, and tweets, using text mining or sentiment analysis techniques. However, with the improved network speed and widespread mobile technology, an increasing number of users are using videos to share information and make communication. Therefore, there is a need to understand how this content-richer medium affects viewers' perception and, in turn, influences their behaviors. Our study takes the first step toward this direction by proposing a new lens to analyze videos, showing that nonverbal cues have an impact on communication effectiveness. In addition, this study is a response to recent calls for the use and analysis of images as a new source of data in information systems research [104].

Fourth, our research expands social perception literature to online settings. Prior research on social perception has been focusing on face-to-face communication. In contrast, our study sheds light on its applications in online communication, suggesting that despite the physical distance, nonverbal cues still play an important role in influencing virtual communication outcomes, although some effects differ from those in face-to-face settings. As people's activities and interactions are increasingly shifting online as the result of the COVID-19 pandemic, a deeper understanding of the impact of social perception can enhance the effectiveness and persuasiveness of online communication and thus warrants future research.

Lastly, our findings on the effect of nonverbal cues may explain how crowdfunding lowers the barriers for women to raise funds. While males are preferred and tend to receive more

funds in traditional financing, female entrepreneurs surprisingly have an advantage and are more successful in crowdfunding. Prior studies examining this unique gender gap have attributed it to female founders being perceived to be more trustworthy by amateur investors [105]. Our research advances this stream of research, suggesting nonverbal cues in crowdfunding videos may shape investors' favorable view of female entrepreneurs. Psychology literature has found that women are more skilled at using nonverbal cues and use them more often [106], which, as revealed in our study, can be the reason why female entrepreneurs gain more trust and have a higher success rate than their male counterparts.

5.2. Practical implications

The current research has some practical implications. First, this research provides actionable suggestions to entrepreneurs on launching a successful crowdfunding campaign. Unlike traditional financing in which entrepreneurs may only have one opportunity to present their ideas in front of investors, crowdfunding campaign founders can record their pitch video presentations multiple times and choose the best one to use. While there is no formula for generating a creative idea or inventing a novel product, our study shows that entrepreneurs can follow some guidelines to communicate more effectively with funders by carefully preparing their video presentations, improving their nonverbal skills, regulating nonverbal behaviors, and paying attention to the details and format of their pitch videos. More specifically, entrepreneurs should appear in the video as early as possible, have natural eye contact, and be fluent in the video. Our study also implies that prepared founders with a genuine, confident but less aggressive manner could have a higher success rate in their crowdfunding campaigns.

The crowdfunding platform should help facilitate effective communication between founders and funders by establishing intimate communication channels. Most crowdfunding platforms focus their design of campaign web pages on the description of campaigns rather than on the introduction of entrepreneurs. Our study reveals that positive social perception of entrepreneurs leads to better funding outcomes. Therefore, the platform may consider allowing entrepreneurs to display more personal content on their campaign webpages, such as a longer biography.

Our study also raises concerns about the biases and risks associated with crowdfunding. On one hand, funders' judgment based on entrepreneurs' nonverbal cues may lead to the use of stereotypes in their funding decisions. For example, Younkin and Kuppuswamy [107] showed

that African American male founders are less likely to receive funding and that prospective supporters rate the quality of their projects much lower. The researchers discovered that such a bias is originated from supporters' unconscious perceptions and assumptions rather than intentional discrimination. While these potential biases are not unique to crowdfunding, due to the lack of credible information and thorough validation process, their effect is more pronounced and creates a bigger challenge to entrepreneurs, crowdfunding platforms, and even the financial market. On the other hand, founders may engage in impression management or even deception to get more financial support by disguising their nonverbal cues. Consequently, if a funder relies heavily on nonverbal cues and overlooks other information, the risk of an investment loss is high. Therefore, funders should be aware of such risks and diversify their use of information when making decisions.

5.3. Limitations and Future Research Directions

Our research is not without limitations. First, although the primary goal and contribution of this study is to take the initial step establishing the relationships between non-verbal cues and crowdfunding outcomes, it is interesting to further examine the underlying mechanisms of those relationships empirically. For example, future research may study how factors such as perceived competence and likability can mediate the relationship between nonverbal cues and entrepreneurial financing. Second, our study focuses on videos with a single entrepreneur. As the implementation of creative ideas becomes increasingly complex and requires collaboration among entrepreneurs, it would be interesting to study how multiple entrepreneurs with distinct nonverbal cues could collectively deliver a convincing video message. Third, our research focuses only on five key nonverbal cues, so future research may extend our research to examine the impact of other nonverbal cues. Finally, our study is an observational study using cross-sectional data, so it can be complemented by randomized controlled experiments that directly measure funders' perception of nonverbal cues and their funding decisions. Therefore, we call for researchers to conduct more experiments to further explore the impact of nonverbal cues on crowdfunding outcomes.

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APPENDICES

Appendix A: A comparison of traditional financing and crowdfunding and crowdfunding literature

Table A1. A Comparison of Traditional Financing and Crowdfunding

	Traditional Financing	**Crowdfunding**
Media	Face-to-face	Internet
Number of funders	Few	Many
Orientation	Personal	Informational
Reward to funders	Investment returns	Products/services
Aim of founders	Fundraising	Fundraising/Promotion
Nonverbal cues	Important	Very important
Task	Relationship building	Impression formation

Table A2. Summary of Crowdfunding Literature

Paper	Main Variables	Theory	Key Findings
Ahlers et al. [1]	IVs: Human capital, social capital, DVs: Reaching goal or not, number of investors, funding amount and speed of investment)	Signaling theory	Retaining equity and providing detailed information about risks could be effective signals that impact funding success
Allison et al. [2]	IVs: Linguistic cues (intrinsic or extrinsic) DV: Time to funding (Time it takes for the loan to be funded)	Cognitive evaluation theory and self-determination theory	Language indicating prosocial behavior tends to be attractive to funders.
Belleflamme et al. [3]	IVs: Pre-ordering, profit sharing DV: Number of the crowdfunders	Asymmetric information	Profit sharing is optimal when an entrepreneur requires large initial capital, while pre-ordering is preferred when the capital requirement is small.
Berns et al. [4]	IV: Financial appeal, social appeal DV: Reaching goal or not	Social responsibility Lens	Lenders are primarily influenced by financial appeal rather than social appeal. Projects that are high on both motives receive the highest average amount of funding.
Colombo et al. [5]	IVs: Internal social capital, number of ties DV: Reaching goal or not	Self-reinforcing mechanism	Internal social capital is positively related to campaign success, but this relationship is moderate in the early days of the campaign.
Cordova et al. [6]	IVs: Project duration, contribution frequency DVs: Probability of success, the success rate of successful	Reinforcement model	Project duration and the dollar amount contributed per day are positively related to project success.

	projects		
Courtney et al. [7]	IV: Use of media, backer sentiments DV: Reaching goal or not	Information asymmetry and signaling	Use of media enhances funding success. And positive backer sentiments complement the effect.
Cox et al. [8]	IV: Public profiles, self-presenting DV: Loan amount lent	Self-presentation theory	Self-presenting funders with public profiles tend to make a larger number of loans. But a photo reduces the number.
Cumming et al. [9]	IV: Crowdfunding models (Keep it all and All-or-Nothing) DV: Reaching goal or not	Signaling theory	Keep it all models (fits the projects that are small and scalable) are less successful than All-or-Nothing campaigns (suitable for the projects that are large and non-scalable) in achieving their funding goals.
Hong et al. [10]	IVs: Prosociality, social media activity DV: Embeddedness Measure	Network embeddedness	Entrepreneurs' embeddedness (measured by Twitter activity) will greatly influence their fundraising outcome in prosocially oriented crowdfunding campaigns.
Liang et al. [11]	IV: Trust DV: Degree to which the funder intends to invest	Dual-process theories Elaboration likelihood model	Performance/cognition-based trust has more weight than affect/personality-based trust (value similarity) in influencing funders' investment in crowdfunding projects
Mollick [12]	IVs: Project goal, backers, pledge, Facebook friends, updates, comments, and duration DV: Reaching goal or not	Signaling theory	Personal networks and project quality, as well as geographic factors, influence the success of crowdfunding.
Parhankangas & Renko [13]	IVs: Concrete and precise language,	Language expectancy theory	Overall, relatable linguistic styles have a higher success rate. Further, social

	Interactive style DV: Reaching goal or not		campaigns are influenced by linguistic styles more than commercial campaigns.
Yuan et al. [14]	IV: latent semantics DV: Confusion matrix of four common performance measures	Text analytics framework	Text extracted trendy topics such as environmental protection tend to get funded.
Zheng et al. [15]	IV: Social capital such as shared meaning DV: Ratio of pledge over the goal	Social capital theory	Social network ties, obligations and shared meaning have a significant effect on crowdfunding performance.

Appendix B: The Coding of Nonverbal Cues in Crowdfunding Pitch Videos

The five independent variables on nonverbal cues were collected by analyzing and coding each pitch video embedded in campaigns' webpages. While the coding of pitch videos is critical to our investigation, it is subjective and prone to errors. Therefore, we took extra effort in enhancing the coding accuracy and reducing measurement errors. First, two doctoral students with communication and business backgrounds were recruited for the coding. Both were involved in the design of our coding scheme so that they understood what was intended to be measured. We note that they were unaware of either our research objectives or hypotheses to avoid any biases. Second, before coding videos in our sample, we asked the two coders to watch 40 pitch videos at Kickstarter and code them for training. During the training, the two coders frequently compared their results and resolved their discrepancies through video replays and discussion. Any remaining disagreement was resolved by the authors. The training ensured that the two coders were familiar with the video format, shared the understanding of our coding scheme, and were able to consistently apply it in data collection. After the training, the two coders independently completed the coding for the sample. Because of our vigorous training, the final coding yielded high inter-rater reliability for the five variables. The intra-class correlations are 0.893 (smiling), 0.983 (eye gaze), 0.8 (speech hesitation), and 0.989 (time to appear) [4], and Cohen's kappa for professional attire is 0.898[5]. For any coding with a significant difference between the coders, they revisited and re-evaluated those videos. This reassessment process was repeated until the coding gap on a video was narrowed to an acceptable range (e.g., the difference between two coders on eye gaze is less than four seconds). Finally, we took the average of the two coders' measures as the independent variables.

Following studies that use thin slices methodology to code nonverbal cues in video clips, our analysis of a pitch video focuses only on its first 30 seconds. We did so for the following reasons: First, previous studies have found people form their impression during the first 30-second of interactions and the first impression is persistent, so using longer periods of observation does not lead to greater accuracy [16]. In addition, the examination of some pitch videos reveals that entrepreneurs' use of nonverbal cues is consistent throughout the videos. Therefore, the first 30 seconds represent and capture the full video's nonverbal cues usage

[4] Intra-class correlations were used because these are continuous variables.
[5] Cohen's kappa was used because the variable is a categorical variable.

pattern. Second, 30 seconds account for a significant portion of videos in our sample, which are 3.5 minutes long, on average. Given the large number of videos available at Kickstarter, most funders may not view the full video, especially those that do not impress them in the first few seconds. The first portion of a video is, thus, more critical in determining funding outcomes than the rest of the video. The use of the first 30 seconds for data analysis reflects how pitch videos are viewed and used in funders' decision making at Kickstarter. Third, concentrating on the first 30 seconds of the video allows us to have a more accurate measurement and make the data collection manageable. Conversely, an analysis of a full video would be more prone to errors due to coders' fatigue. To further validate the consistency of nonverbal cue uses in pitch videos, we randomly selected 40 out of 205 campaigns (20 in technology and 20 in film & video), coded all five nonverbal cues, and compared them in the first 30 seconds to those in the rest of video. Between these two groups, we found eye gaze, smile duration, and speech hesitations are highly correlated, and timing of appearance and professional attires are the same, which confirms that the first 30 seconds represent the full video very well.

Appendix C. Descriptive Statistics and Correlations

Table C1. Descriptive Statistics of Variables

Variable	Mean	Standard Deviation	Minimum	Maximum
TotalFunded	22182.58	109825.10	0.00	1368177.00
NumberOfSupporters	141.03	363.45	0.00	2253.00
Novelty	1.58	0.66	0.00	2.00
DescriptionClarity	1.59	0.62	0.00	2.00
Readability	9.95	5.33	3.50	17.40
Complexity	88.08	7.29	65.30	100.00
TargetValue	36763.97	65386.48	200.00	410000.00
LowestReward	9.33	19.83	0.88	256.58
HighestReward	3415.64	3626.39	5.00	10000.00
CampaignCategory	0.49	0.50	0.00	1.00
Gender	0.83	0.38	0.00	1.00
NumberPreProjects	0.40	1.23	0.00	9.00
location	0.68	0.47	0.00	1.00
FundingPeriod	32.54	10.43	11.00	60.00
VideoClarity	1.31	0.66	0.00	2.00
VideoVividness	0.47	0.50	0.00	1.00
MusicLength	16.00	13.92	0.00	30.00
NumberOfPictures	0.91	1.81	0.00	14.00
NumberOtherSpeakers	0.73	1.51	0.00	8.00
NumberSupportedProject	2.33	4.62	0.00	34.00
EyeGaze	0.75	0.32	0.00	1.00
SmileDuration	0.07	0.16	0.00	0.93
TimetoAppear	4.86	6.47	0.00	27.00
SpeechHesitation	0.52	1.09	0.00	6.00
Attire (formal)	0.13	0.33	0.00	1.00
Attire (Semi-formal)	0.31	0.46	0.00	1.00

Table C2. Correlation Matrix

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
(1)FundingSuccess																								
(2)EyeGaze	-0.15																							
(3)SmileDuration	0.14	0.10																						
(4)TimetoAppear	-0.06	0.03	0.05																					
(5)SpeechHesitation	-0.15	-0.10	-0.09	-0.18																				
(6)Attire (formal)	-0.04	-0.14	0.05	-0.04	0.09																			
(7)Attire (Semi-formal)	0.00	0.18	0.08	-0.01	-0.05	-0.25																		
(8)Novelty	0.34	-0.10	0.11	-0.02	0.04	0.11	-0.06																	
(9)DescriptionClarity	0.13	-0.01	0.08	0.01	-0.14	0.04	-0.06	0.11																
(10)Readability	0.11	0.00	0.01	-0.01	-0.05	0.01	-0.04	0.10	0.00															
(11)Complexity	-0.02	-0.06	-0.03	0.05	-0.07	-0.13	0.07	-0.04	-0.31	0.05														
(12)TargetValue	-0.26	0.02	0.00	0.09	-0.08	0.10	0.10	-0.02	0.18	-0.01	-0.18													
(13)LowestReward	0.01	0.01	-0.03	0.25	0.08	-0.03	-0.03	0.08	-0.26	0.13	0.08	-0.05												
(14)HighestReward	-0.03	-0.03	0.00	0.07	-0.15	0.14	0.02	-0.03	0.33	0.00	-0.20	0.38	-0.23											
(15)CampaignCategory	-0.21	0.17	-0.08	0.01	-0.01	-0.09	0.11	0.01	0.18	0.01	-0.05	0.24	-0.04	-0.21										
(16)Gender	-0.05	-0.01	-0.35	0.04	0.09	-0.18	0.00	0.08	-0.05	0.06	0.05	-0.06	0.01	-0.07	0.21									
(17)NumberPreProjects	-0.03	-0.01	-0.01	-0.03	0.03	-0.06	-0.07	-0.11	-0.03	-0.10	-0.03	-0.17	-0.05	-0.09	0.08	0.07								
(18)location	0.16	0.02	0.06	-0.07	0.12	0.04	-0.03	-0.06	-0.03	-0.22	-0.10	-0.03	-0.23	-0.15	-0.09	-0.06	0.10							
(19)FundingPeriod	-0.09	-0.06	-0.15	0.03	0.14	0.05	-0.06	0.05	0.21	-0.02	-0.16	0.21	0.05	0.07	0.03	0.16	-0.02	0.10						
(20)VideoClarity	0.24	-0.09	0.13	0.08	-0.05	0.00	-0.01	0.19	0.22	0.05	-0.03	0.12	0.01	0.14	-0.06	0.03	-0.08	-0.07	0.10					
(21)VideoVividness	0.14	-0.06	0.02	0.14	-0.20	0.08	-0.01	0.05	0.28	0.14	-0.12	0.26	-0.03	0.30	0.02	-0.01	-0.09	0.03	0.02	0.34				
(22)MusicLength	0.10	-0.08	-0.03	0.27	-0.25	0.00	0.10	-0.01	0.19	-0.09	-0.03	0.17	0.01	0.27	0.03	-0.06	-0.15	0.01	0.07	0.17	0.40			
(23)NumberOfPictures	-0.01	0.13	0.08	0.12	-0.18	-0.01	-0.02	0.07	0.10	0.18	0.01	-0.01	0.17	-0.02	-0.02	-0.05	0.04	-0.06	-0.03	-0.08	0.03	0.11		
(24)NumberOtherSpeakers	0.10	-0.19	-0.01	0.16	-0.08	0.13	-0.13	0.06	0.14	-0.04	-0.06	0.08	-0.12	0.13	-0.18	-0.07	-0.03	0.15	0.12	0.12	0.31	0.11	-0.03	
(25)NumberSupportedProject	0.21	0.03	0.08	-0.09	-0.06	-0.07	0.00	0.09	0.22	-0.04	-0.02	-0.02	-0.18	0.08	0.04	0.00	0.15	0.22	0.00	0.09	0.07	0.04	0.09	0.07

Appendix D. Robustness Checks

D1 Endogeneity

Two sources of endogeneity might be threats to the internal validity of our study. The first source is confounding factors, which may affect both the use of nonverbal cues and funding outcomes but are unobservable to researchers. The second is selection bias, which is caused by the fact that some crowdfunding campaigns are excluded from our sample. We argue that the first one is not a serious concern, and we address the second one using a selection model.

D1.1 Confounding variables

While unobservable confounding variables are common in most empirical studies, they do not pose a serious threat to the validity of our results for the following reasons. First, we have included an extensive range of control variables to account for entrepreneur, video, and project-related characteristics. Second, prior research suggests that confounding variables may not bias the results of crowdfunding studies, because most variables funders use to make decisions are observables to researchers and thus can be properly controlled for. As Lin, Prabhala, and Viswanathan [17] note in their study of peer-to-peer lending that "we have access to the complete vector of information that a potential lender sees about a borrower. Thus, if a variable is unobservable to us, it is also unobservable to potential lenders", and they conclude that it "thus can eliminate bias due to unobservables".

D1.2 Sample selection

Since our analysis only included campaign videos with a single speaker appearing in the first 30 seconds, one concern was that the choice of the number of speakers appearing in the video could be the result of self-selection and, thus, bias our analyses. For example, certain types of projects or products may require a personal demonstration that results in more exposure of founders in the video. In addition, a founder who is shy away from the camera or who is low profile may intentionally avoid a presence in the video. Therefore, we estimated a selection model to correct for potential selection bias.

We first constructed a sample including both single-speaker campaigns used in the previous analysis and another 207 randomly selected campaigns with zero or more than one speaker in the first 30 seconds of the video. T-tests show that the two sub-samples are not significantly different at 0.05 confidence level in terms of success rate, funding goals, raised funds, and lengths of the funding period. We then specified a two-equation selection model. The

first equation (selection equation) is a probit model predicting whether only one speaker appeared in the video, and the second equation (outcome equation) is another probit model same as equation (1) in Section 4.1, estimating the impact of nonverbal cues on funding success.

The first equation includes variables that may have a direct impact on the number of speakers. In addition to variables discussed previously including funding goal and funding period, we added two new variables in the first model to control for product type and founders' photo type. The variable of product type was created by coding all campaign products into one of the four categories based on their descriptions: software (mobile and desktop applications), hardware (gadgets and tools), fictional movie (drama, action, horror, and comedy movies), and documentary movie (all non-fictional movies). We used another categorical variable to capture the type of photo a founder used at Kickstarter. Kickstarter has a feature to allow founders to upload their photos along with their brief biographies. We created a proxy variable by classifying photos into one of the three types: (1) a formal headshot portrait photo showing the founder's top shoulder up to the head with his/her face as the focus; (2) a casual full-body photo with the face not clearly seen; and (3) a landscape or cartoon used by the founder to fill the webpage space rather than his/her own photo. Previous studies have shown that the use of personal photos in public reflects a person's camera shyness or willingness to make a public appearance. We note that these two variables are not included in the outcome equation, because we do not have any theoretical support that either one has a direct impact on campaign outcomes. They thus meet exclusion restriction requirements for the selection model to be accurately estimated.

We used full information maximum likelihood estimation (MLE) to jointly estimate the two equations of the self-selection model [18],[6] and the results are close to those in Table 2 and are summarized in Table D1 Column (1).

[6] We used maximum likelihood estimation (MLE) instead of a two-step method for estimation because the dependent variables of both equations in our model are binary. MLE is also considered more efficient than the two-step method [3].

Table D1. Robustness Checks with Alternative Dependent Variables and Specifications

Variables	(1) DV=Funding Success Logit model with sample selection	(2) DV=Ratio of funded to funding goal Tobit Model	(3) DV=Number of Supporters Negative Binomial Model	(4) DV=Number of days for reaching the funding goal Cox Proportional Hazards Model	(5) DV=Funding Success Logit model with standard error clustered at the regional level
EyeGaze	-0.8568***	-1.6251**	-0.6193*	0.2490***	-1.6055***
	(0.3290)	(0.7391)	(0.3618)	(0.0932)	(0.5140)
SmileDuration	0.5145	1.0429	-0.4975	2.1317	0.7793
	(0.5972)	(1.1209)	(0.5095)	(1.1583)	(1.1400)
TimetoAppear	-0.0385*	-0.0884*	-0.0391***	0.9434**	-0.0894*
	(0.0229)	(0.0530)	(0.0142)	(0.0239)	(0.0462)
SpeechHesitation	-0.5015***	-0.8656**	-0.3327***	0.5251***	-0.9322***
	(0.1527)	(0.3956)	(0.0904)	(0.1073)	(0.2724)
Attire (formal)	-0.4046	-1.1068	-0.0888	0.6816	-0.7304
	(0.3280)	(0.7871)	(0.3256)	(0.2863)	(0.6315)
Attire (Semi-formal)	0.1205	0.9284	0.4010*	1.0295	0.2106
	(0.2392)	(0.7282)	(0.2427)	(0.2567)	(0.5482)
Controls	Yes	Yes	Yes	Yes	Yes
R-squared		0.1189	0.0706		0.4105
Log pseudolikelihood	-349.8531	-241.5069	-1030.5267	-304.0650	-79.4035
Observations	412	205	205	205	205

Notes. Control variables include: Novelty, DescriptionClarity, Readability, Complexity, Log(TargetValue), Log(LowestReward), Log(HighestReward), CampaignCategory, Gender, NumberPreProjects, Location, FundingPeriod, VideoClarity, VideoVividness, MusicLength, NumberOfPictures, NumberOtherSpeakers, NumberSupportedProject,

Robust standard errors are in parentheses, except for column (5), in which standard errors are clustered at the regional level.

Column (4) reports hazard ratios.

*p<0.1; **p<0.05; ***p<0.01

D2 Alternative measures and specifications

We also conducted robustness checks on our results with alternative measures and specifications. We first used the ratio of raised funds to funding goals as an alternative dependent variable. This variable measures the extent of campaign success. We re-estimated the model with a Tobit model and the results remain largely unchanged as reported in Table D1 Column (2).[7] In addition, we used the number of supporters who made financial contributions to a project as another alternative dependent variable. Crowdfunding is considered as a promotion opportunity to reach out to more potential customers and raise publicity, so the number of supporters reflects the attractiveness of a project and could affect its long-term success [19]. Because the number of supporters is a count variable, we used a negative binomial model for estimation.[8] The results are close to those when the dependent variable is financing success, and we summarized them in Table D1 Column (3). Finally, we used the number of days it took a campaign to achieve its founding goal as an alternative dependent variable. This variable reflects the effectiveness of a campaign in raising funds. We collected data from Kicktraq.com, which achieves data on all campaigns at Kickstarter, including the amounts of their daily accumulated funds. We counted the duration between the day when the campaign was launched and the day when the funding goal was reached. We then used a Cox proportional hazards model with right censoring to estimate the impact of nonverbal cues on the duration.[9] The results are reported in Table D1 Column (4) and are consistent with those in Table 2.

Additionally, previous research suggests that culture and distance proximity, which is determined by entrepreneurs' geographical locations, could affect crowdfunding outcomes [20, 21]. While we already included a control variable of entrepreneurs' location in the model estimation, we further explored its impact on our results by clustering standard errors at the state level for campaigns in the United States or at the continental level for campaigns outside

[7] Tobit model is used because the dependent variable of funding ratio is left-censored. Due to herding effect (Herzenstein 2011), an unsuccessful campaign receives less funds than it would because potential funders are reluctant to support campaigns with less chance of reaching their funding goals. As a result, the funding ratio for unsuccessful campaigns is suppressed and its true value could not be observed. Therefore, following previous studies on crowdfunding (Burtch et al., 2016; Lin and Viswanathan, 2015), we used a Tobit model for estimation.

[8] We chose the negative binomial model due to the over-dispersion presented in the data, i.e., the variance of number of supporters is much greater than its mean. A likelihood-ratio test confirms that the dispersion parameter is significantly greater than zero.

[9] Cox proportional hazards model with right censoring was used because the dependent variable is duration/survival type data, and its true value cannot be observed for campaigns that have not yet reached the funding goals when their campaign periods expired.

of the United States. As shown in Table D1 Column (5), the results do not change with the new standard error estimation method.

We also used smiling frequency, measured by the number of times a speaker smiled in the first 30 seconds, as an alternative to smiling intensity to re-estimate the model. In addition, in previous analyses we only considered a suit with a light-colored shirt as formal attire for male founders, so we changed the coding to include shirts with all colors for a robustness test. Finally, we re-estimated the model after removing two campaigns in which founders' eye gazes were invisible because they were wearing sunglasses in the videos. The results are the same after these changes.

D3 Sub-samples

We also repeated the analysis using different groups of sub-samples. First, although we included a control variable, the number of previous Kickstarter campaigns a founder created, to control for the founder's experience, it may not be able to fully account for the knowledge, confidence, or attention the entrepreneur gained from previous crowdfunding campaigns, which could affect the pitch video and funding success in subsequent campaigns. To further address this concern, we re-estimated the model using a subsample that includes only entrepreneurs' first campaigns at Kickstarter. The results remain close to those in Table 2 and are summarized in Table D2 Column (1).

Second, previous studies show that founders' friends and family may be among the early funders of a crowdfunding campaign [20]. If a campaign is driven by friends and family's support, the pitch video will have little impact on funding outcomes because friends and family are more likely to use other channels to communicate with founders and gather information [20]. However, our analyses show that our findings are unlikely to be affected by friends' and family's supports. First, the average number of supporters is 141 for all campaigns in our sample, and 335 for successfully funded campaigns. Thus, the friends and family of a founder may only account for a small portion of funders. Second, support of friends and family is more likely to make a difference for small-scale campaigns with low funding goals. Therefore, following [22], we excluded campaigns whose funding goals were less than US$5,000 and re-estimated our model. As reported in Table D2 Column (2), our results remain the same.

Third, to make it more professional, some founders may choose to have an actor in the pitch video to introduce the project on their behalf, but such videos may create a different social perception than those in which founders spoke for themselves. To investigate the impact it may have on our results, we first determined if the speaker in a video is the founder

in two ways: (1) we compared the speaker to the founder's photo posted on campaign webpages, and (2) we checked if the speaker used pronouns such as "I", "We", "My", or "Our" to imply ownership when describing his/her relationship with the campaign. Our screening of all campaign videos reveals that only eight of them used a speaker/actor other than the founder. We re-estimated our model after removing those campaigns and the results do not change, as reported in Table D2 Column (3).

Fourth, previous studies found a herding effect in crowdfunding, in which funders tend to support campaigns that have already received strong support from others. To rule out that our results are biased by the herding effect, we limited the analysis to less ambitious and less successful campaigns that set a funding goal and raised less than 100,000 dollars. As reported in Table D2 Column (4), the results remain the same after the change.

Table D2. Robustness Checks with Sub-samples

Variables	**(1)** **Sub-sample of founders' first campaigns**	**(2)** **Sub-sample of campaigns with a funding goal greater than $5,000**	**(3)** **Sub-sample of campaigns with no professional actors as a speaker**	**(4)** **Sub-sample of campaigns setting a funding goal and raising less than $100,000**
EyeGaze	-1.6718** (0.7361)	-2.2116** (0.9580)	-1.8430*** (0.6575)	-1.4539** (0.7380)
SmileDuration	0.7100 (1.2228)	0.0133 (1.5219)	0.4627 (1.3723)	0.8041 (1.6520)
TimetoAppear	-0.1256** (0.0489)	-0.2118*** (0.0662)	-0.0875* (0.0519)	-0.0951* (0.0518)
SpeechHesitation	-1.2732** (0.5320)	-2.5344*** (0.7742)	-0.9205*** (0.2919)	-0.9261** (0.2930)
Attire (formal)	-0.7738 (0.8046)	-0.6815 (0.9371)	-0.7681 (0.6873)	-0.8490 (0.7023)
Attire (Semi-formal)	0.7006 (0.5857)	0.1063 (0.7592)	0.2002 (0.4653)	0.0301 (0.4854)
Controls	Yes	Yes	Yes	Yes
Log pseudolikelihood	-60.6504	--40.8250	-77.0055	-68.9067
Pseudo R-squared	0.4228	0.5691	0.4073	0.4226
Observations	163	154	197	180

Notes. Control variables include: Novelty, DescriptionClarity, Readability, Complexity, Log(TargetValue), Log(LowestReward), Log(HighestReward), CampaignCategory, Gender, Location, FundingPeriod, VideoClarity, VideoVividness, MusicLength, NumberOfPictures, NumberOtherSpeakers, NumberSupportedProject,

The variable NumberPreProjects is also included in Column (2)—Column (4).
All models are estimated by logistic regression.
Robust standard errors are in parentheses.
*p<0.1; **p<0.05; ***p<0.01

Appendix E. Post Hoc Power Analysis

As we did not find a significant impact of smiling and professional attire on funding success, we conducted a post hoc power analysis using G*Power Version 3.1.9 [23], to rule out the possibility that the nonsignificant results are caused by insufficient sample size. Our analysis revealed that the achieved power is 0.99, indicating that the statistical power provided by our sample is well above the recommended threshold of 0.8 and is thus sufficiently large to detect any small observed effect size [24].

Appendix F. Curvilinear Relationships and Moderating Effects

We explored nonlinear relationships between nonverbal cues and funding outcomes. Particularly, we tested if there is an inverted U-shaped relationship between (1) smile and funding success and (2) eye gaze and funding success because moderate level of smiles or eye gaze may have a stronger impact than a very low or high level of them. We thus squared the smiling and eye gaze, added the quadratic terms to Equation (1), and re-estimated the model. However, neither of the squared terms is significant, as shown in Columns (1) and (2) of Table F1, suggesting the relationships between the two nonverbal cues and funding success are not concave.

We also explored if the impact of nonverbal cues on funding success varies across crowdfunding campaigns by testing the moderating effect of four project and entrepreneur characteristics, including funding goal, the novelty of the project, category of the project, and gender of the entrepreneur. When pitching a venture with a larger scale or a newer idea, the speaker's nonverbal cues might have different weights in funders' decisions. In addition, different types of projects might require their own unique ways of presentation, so nonverbal cues can have a varied influence. Finally, female entrepreneurs' nonverbal cues might be perceived different from their male counterparts. We added the interaction terms between three nonverbal cues that are significant and four potential moderators to the model and then re-estimated their effects. As shown in Table F1 Column (3)-(6), none of the interaction terms is significant, indicating the effects of nonverbal cues are consistent across crowdfunding campaigns.

Table F1. Curvilinear Relationship and Moderation Effect Analyses

Variables	**(1) Squared term= (EyeGaze)^2**	**(2) Squared term= (SmileDuration)^2**	**(3) Moderator =funding goal**	**(4) Moderator =novelty**	**(5) Moderator =category**	**(6) Moderator =gender**
EyeGaze	-1.7522	-1.6259**	1.4352	-3.0473**	-2.0710**	-2.7064
	(2.5023)	(0.6478)	(5.1533)	(1.5524)	(0.9253)	(2.1264)
(EyeGaze)^2	0.1315					
	(2.3004)					
EyeGaze*Moderator			-0.3204		1.1191	1.3382
			(0.5318)		(1.3651)	(2.1272)
SmileDuration	0.7760	-2.9085	0.8464	0.7364	0.8129	0.8332
	(1.2006)	(3.5612)	(1.3222)	(1.2214)	(1.1734)	(1.1971)
(SmileDuration)^2		6.3491				

		(5.7635)				
TimetoAppear	-0.0897*	-0.0869	0.1428	-0.1636	-0.0800	-0.0806
	(0.0536)	(0.0538)	(0.3217)	(0.1210)	(0.0796)	(0.0743)
TimetoAppear* Moderator			-0.0248		-0.0287	-0.0105
			(0.0331)		(0.0784)	(0.0845)
SpeechHesitation	-0.9302***	-0.8968***	0.9748	-1.3370	-0.8129	-0.4452
	(0.2773)	(0.2736)	(2.0238)	(2.0815)	(0.3373)	(1.1367)
SpeechHesitation*Moderator			-0.2148		-0.3701	-0.5600
			(0.2358)		(0.5486)	(1.1897)
Attire (formal)	-0.7350	-0.6916	-0.8803	-0.7100	-0.7843	-0.8786
	(0.6707)	(0.6511)	(0.6853)	(0.6644)	(0.6623)	(0.6767)
Attire (Semi-formal)	0.2081	0.1888	0.2328	0.2210	0.2433	0.2003
	(0.4701)	(0.4668)	(0.4846)	(0.4645)	(0.4655)	(0.4689)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Log pseudolikelihood	-79.4022	-78.9266	-78.5210	-79.1650	-78.7581	-78.8642
Pseudo R-squared	0.4105	0.4141	0.4171	0.4123	0.4153	0.4145
Observations	205	205	205	205	205	205

Notes. Control variables include: Novelty, DescriptionClarity, Readability, Complexity, Log(TargetValue), Log(LowestReward), Log(HighestReward), CampaignCategory, Gender, NumberPreProjects, Location, FundingPeriod, VideoClarity, VideoVividness, MusicLength, NumberOfPictures, NumberOtherSpeakers, NumberSupportedProject.

All models are estimated by logistic regression.

Robust standard errors are in parentheses.

*p<0.1; **p<0.05; ***p<0.01

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