Three essays on crowdfunding: Exploring what mobilizes backers and drives crowdfunding success

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List of abbreviations

BA	Business angel
CF	Crowdfunding
e.g.	exempli gratia / for example
et al.	et alii / and others
i.e.	id est / that is
id	identifier
m	million
Max	maximum
Min	minimum
N	number
OT	Otter.ai
p	significance level
p.	page
PD	project description
pp.	pages
r	pairwise correlation coefficient
SD	standard deviation
U.S.	United States (of America)
VC	Venture capital
VIF	variance inflation factor
YT	YouTube

A. Introduction

1 Motivation and relevance of the dissertation

Crowdfunding is an alternative type of venture financing which involves an open call on the internet in order to collect financial resources from a large online crowd (Kuppuswamy & Bayus, 2018). Depending on the crowdfunding form, the crowd receives tangible or intangible rewards, monetary benefits, or equity in exchange for their contribution (Belleflamme et al., 2014). Crowdfunding is distinct from neighboring concepts such as venture capital or business angel financing (McKenny et al., 2017). Unlike these more traditional venture financing concepts, crowdfunding represents a shift from expert-based decision-making to crowd-based decision-making. As such, it is commonly stated that crowdfunding "democratizes innovation" (Mollick & Robb, 2016). This is because of two reasons.

First, from a venture perspective, the availability of early-stage funding is a critical barrier when it comes to commercialize innovations (Cosh et al., 2009). Historically, the decision which ventures and innovations receive institutional support has been in the hands of a small group of highly educated and mostly male expert investors such as venture capital managers or business angels, which provide the majority of seed capital. Likewise, the entrepreneurs that receive the possibility to pitch their ideas are themselves highly educated and typically belong to a small elite that shares interests and network connections with these experts (Mollick & Robb, 2016). Moreover, investors prefer innovations for which they have personal interest, which makes their investment decision subjective (Hewlett et al., 2013). Prior research on this topic shows the lack of diversity in these financing options. For example, only few venture capital-backed ventures are led by women (Brush et al., 2014; Coleman et al., 2019). The same goes for females or racial minorities such as African Americans in the business angel scene, in which both are considerably underrepresented

(Edelman et al., 2018; Sohl, 2015). However, innovative ideas and entrepreneurial spirit are not exclusive to some, but occur in all parts of society (Baldwin & Von Hippel, 2011; Von Hippel et al., 2012). In this vein, crowdfunding is seen as a more democratic approach because the crowd levels biased contextual factors, risk aversion, and geographical constraints and thus allows entrepreneurs to bypass the possible difficulties historically associated with seed funding (Mollick & Robb, 2016). Yet, it must be noted that the crowd does not reflect society at large but mostly consists of millennials and members of generation Y from developed countries (Calic & Mosakowski, 2016).

Second, from an investor perspective, crowdfunding opens up investment opportunities for the crowd, which were otherwise difficult to access. Crowdfunding backers are coined as a "different kind of investor", because their decision-making includes a combination of "feel good" and financial aspects (Assenova et al., 2016). In reward-based crowdfunding, the backers intend to consume the products or services they support. Accordingly, they act as investors and consumers at the same time and thus are driven by a broad set of motivations, which differs from that of venture capitalists or business angels (Cholakova & Clarysse, 2015). In detail, backers are considered to be the earliest possible adopters of innovations and want to be part of the product development journey (Stanko & Henard, 2017). Consequently, crowdfunding backers not only offer money, but typically take pleasure in shaping and designing the products or services they pledge to via communication tools (e.g. the comment section of the campaign) embedded in the crowdfunding platforms (S. Manning & Bejarano, 2017).

In this regard, backers are a focal point when we try to understand the mechanisms and dynamics of crowdfunding success. Crowdfunding research mostly centers around the question what makes backers pledge and drives crowdfunding performance (e.g. Bretschneider & Leimeister, 2017; Giudici et al., 2013; Kaartemo, 2017). One approach to

do so is to analyze the information disclosed in the crowdfunding campaign such as the crowdfunding campaign characteristics (e.g. funding goal, team size, gender of the entrepreneur), the textual campaign description, and the video pitch (e.g. Anglin, Short, et al., 2018; Parhankangas & Renko, 2017). Since crowdfunding campaigns are projects in the making and very early stage, it is likely that this is the only information available concerning the project and thus the only decision-making basis for backers (S. Manning & Bejarano, 2017). Analyzing this information offers valuable insights for crowdfunding scholars and potentially minimizes measurement errors, because the relationship between what information is given and how backers respond to it is most likely unaffected by statements that are made outside the crowdfunding platform (Frydrych et al., 2016; McKenny et al., 2018; Stanko & Henard, 2016).

However, the information that the entrepreneurs disclose in their campaigns is relatively concise and self-reported, which is why information asymmetries are inherently high in crowdfunding (Vismara, 2019). Crowdfunding research thus gravitates around what theories explain how the crowd decides to pledge. Here, the most commonly used theories are signaling and framing theory (e.g. Courtney et al., 2017; Nielsen & Binder, 2020). Whereas signaling theory explains what information (e.g. concrete language signals truthfulness and thus reduces uncertainty) conveys the quality of a crowdfunding campaign, framing theory explains how information will be interpreted by backers with regard to their prior assumptions and knowledge (Salge et al., 2022). Thus, framing theory provides insights into how individuals construct meaning in a certain context and how this affects individual behavior and decision-making (Gavetti & Levinthal, 2000; Walsh, 1995).

Although signaling and framing theory are the most prominent among crowdfunding researchers, studies based on language expectancy theory (LET) are starting to gain traction among scholars (e.g. Horvát et al., 2018; Parhankangas & Renko, 2017). LET helps to

explain how the choice of specific language may negatively or positively violate the expectations of a certain audience (Averbeck, 2010).

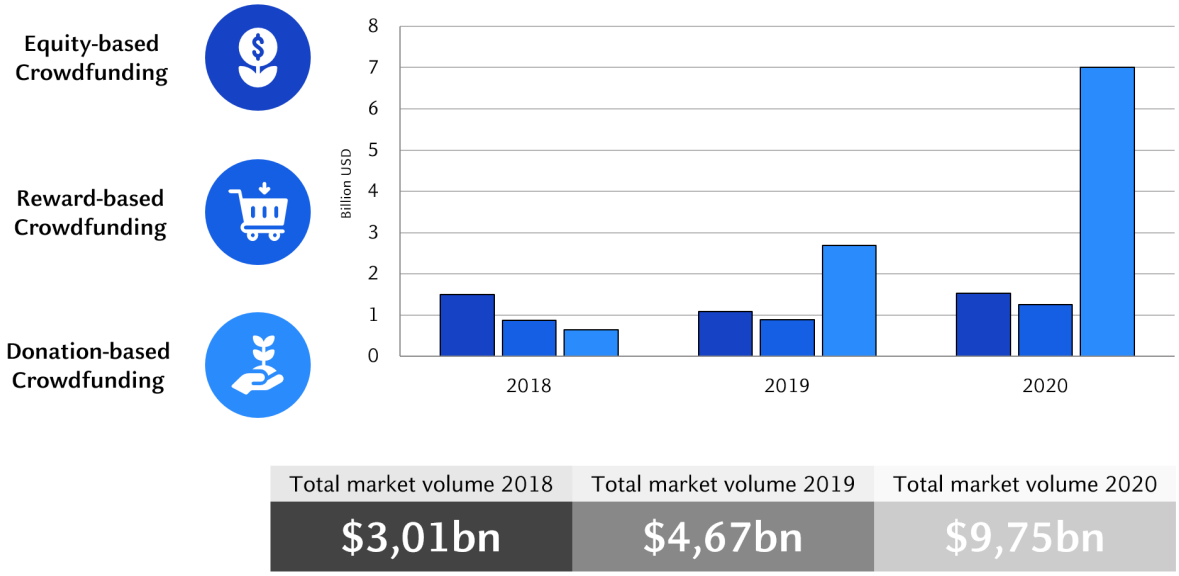
1.1 Market overview of crowdfunding

Crowdfunding has grown rapidly in the past years. However, if we look at the market volume of the different crowdfunding forms separately as visualized in Figure A-1, a clearer picture emerges. In equity-based crowdfunding, entrepreneurs publicly offer company equity via crowdfunding platforms that provide a legal framework for transactions (Ahlers et al., 2015). Equity-based crowdfunding saw a decline from $1.5bn to $1bn from 2018 to 2019 in transaction volume (Ziegler, Shneor, Wenzlaff, et al., 2020). Especially in the US, the year 2018 was a boom year for equity-based investments, as Title III of the Jumpstart Our Business Startups (JOBS) Act came into full effect. The JOBS Act loosened the securities regulations for startups involved in equity-based crowdfunding and allowed not only SEC accredited investors but everyone to participate in equity investments (Ivanov & Knyazeva, 2017). In response to the boom year 2018 which created an excessive run on this crowdfunding form, the interest in equity-based investments flattened in the US in 2019 which mainly caused the decline. However, equity-based crowdfunding recovered to the previous global volume of $1.5bn in 2020 (Ziegler et al., 2021).

In donation-based crowdfunding, the crowd does not expect any return from their contribution but support projects out of altruism (Mollick, 2014). Donation-based crowdfunding grew significantly with an annual growth rate of 310% from 2018 to 2019 and 160% from 2019 to 2020. This trend was mainly driven by an initiative of the U.K. government which implemented a national project aimed to support crowdfunding campaigns in the health and social sector. This initiative was extended in 2020 due to the impact of the COVID-19 pandemic so that donation-based crowdfunding from the U.K. accounted for 77% ($5.7bn) of the global market volume (Zhao & Ryu, 2020; Ziegler et

al., 2021; Ziegler, Shneor, Wenzlaff, et al., 2020; Ziegler, Shneor, & Zhang, 2020). These fundraising achievements demonstrate that crowdfunding can serve as a source of social finance in times of crisis (Farhoud et al., 2021).

Figure A-1: Global crowdfunding market size

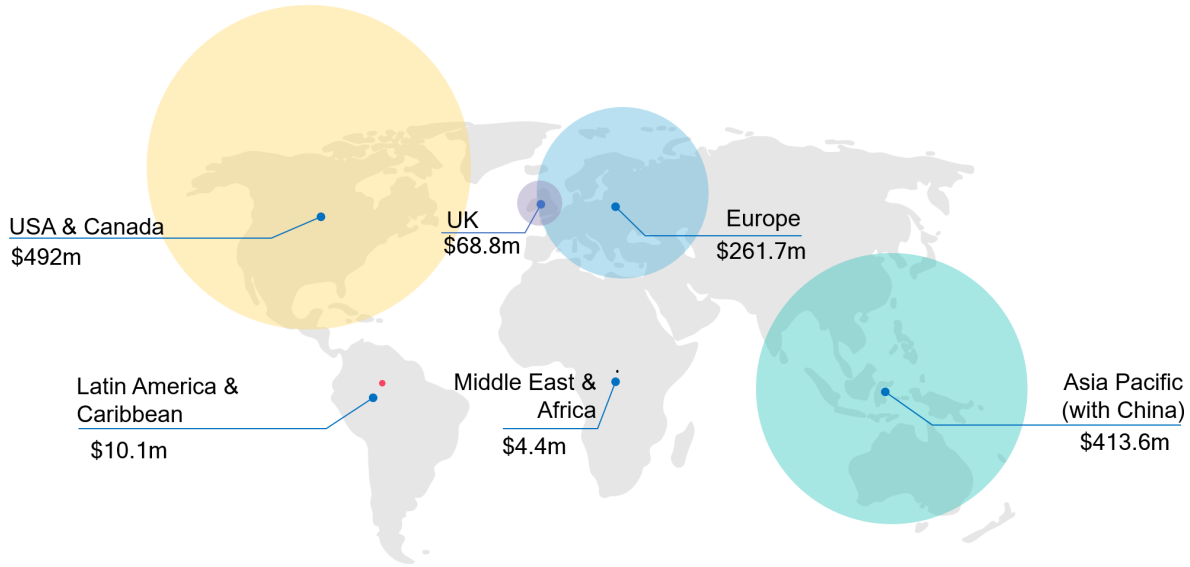


Source: Author's own depiction based on Ziegler, Shneor, Wenzlaff, et al. (2020), Ziegler et al. (2021)

In reward-based crowdfunding, which is the form this dissertation focuses on, the crowd is entitled to a non-financial reward. Typically, the reward is the product or service which the crowdfunding campaign aims to develop or market through the funding (Cumming et al., 2015). Besides fundraising, reward-based crowdfunding provides valuable marketing insights. First, entrepreneurs can use crowdfunding campaigns to promote their projects and establish a reputation (Buttice et al., 2017). Second, crowdfunding platforms are a useful testbed for market reactions concerning innovative and novel ideas (Stanko & Henard, 2016). From 2018 to 2019, the global market volume of reward-based crowdfunding grew from $880m to approximately $900m. In 2020, reward-based crowdfunding maintained its steady growth and accounted for $1.25bn in total volume. (Ziegler et al., 2021; Ziegler, Shneor, & Zhang, 2020). As depicted in Figure A-2, the main activities of this form is concentrate in the US and Canada, Asia Pacific, and Europe.

Especially activities in the Middle East and Africa have not gained traction, as the low economical and infrastructural development level entail that the activities remain domestic (Behi et al., 2020). In Latin America and the Caribbean, cross-border inflows and outflows grew steadily from 2018 which contribute to the emergence of a alternative financing ecosystem (Fontana & Ordóñez, 2020).

Figure A-2: Size of crowdfunding markets across the world



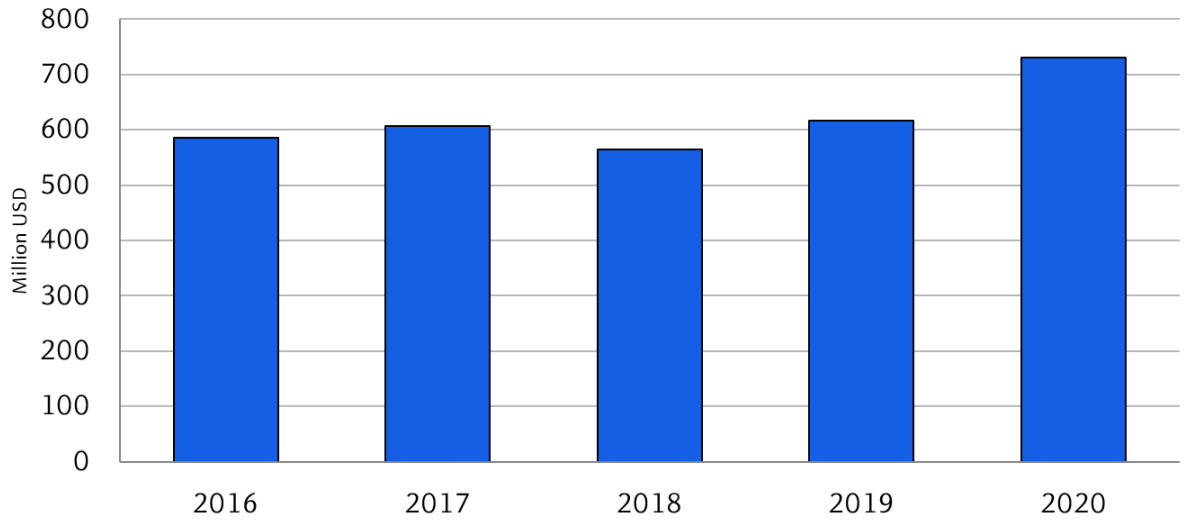
Source: Author's own depiction based on Ziegler et al. (2021)
Note: Funding volume as of 2020. The size of the circles corresponds to the respective market volume.

All three essays in this dissertation are based on data from the reward-based crowdfunding platform Kickstarter. With more than $6.5bn in capital raised and more than 20 million backers since its founding in 2009, Kickstarter is one of the most successful reward-based crowdfunding platforms worldwide (Kickstarter, 2022d).

Recent data shows that 2020 was a record year for Kickstarter in terms of how much money was raised. Compared to prior years where roughly $600m changed hands every year on the platform (see Figure A-3), entrepreneurs were able to secure $730m from successful campaigns in 2020. According to Kickstarter (2022a), COVID-19 did not slow down the number of visits from potential project backers on the platform. Moreover, the percentage of actual pledges from these visits remained consistent compared to prior years.

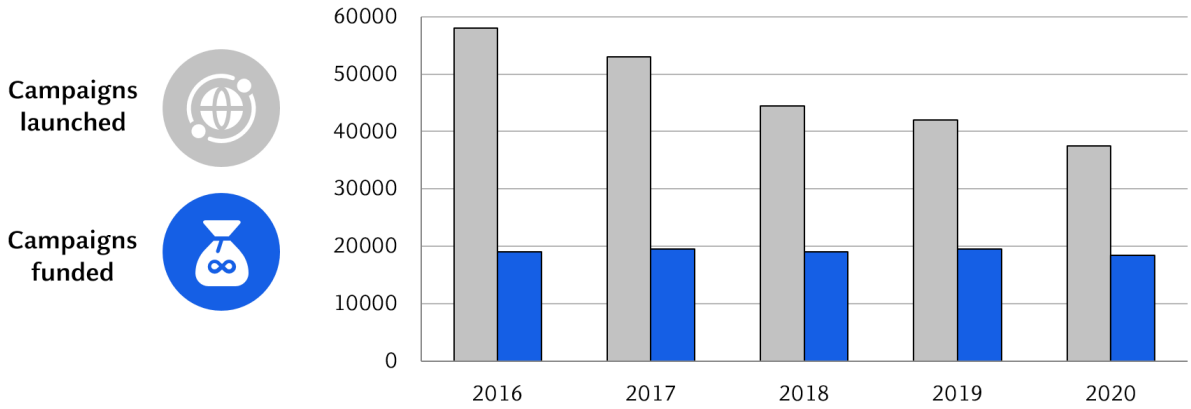
Although the total number of campaigns that were launched dropped, the funding success rate for campaigns, that is, campaigns that at least met their predefined funding goal in relation to all campaigns, increased further to roughly 51%. Accordingly, more than half of all campaigns that were launched on the platform were funded successfully. As visualized in Figure A-4, this trend suggests that entrepreneurs become more professionalized in creating their projects and more specialized in crafting their campaigns, which is why more money was raised on average than in prior years (ICOPartners, 2022; Kickstarter, 2022b).

Figure A-3: Total amount raised on Kickstarter in Dollar (successful projects only)



Source: Author's own depiction based on ICOPartners (2022), Kickstarter (2022b), (Kickstarter, 2022d)

Figure A-4: Number of campaigns on Kickstarter



Source: Author's own depiction based on ICOPartners (2022), (Kickstarter, 2022d)

1.2 The different stages of a reward-based crowdfunding campaign

A typical reward-based crowdfunding campaign consists of three stages: the preparation stage, the financing stage, and the realization stage (Zhao & Ryu, 2020).

Preparation stage

The preparation stage focuses on project evaluation and ideas. To launch a crowdfunding campaign, entrepreneurs are obliged to define a concrete product or service the campaign aims to fund (e.g. a smartwatch) and outline a rough manufacturing plan (Mollick, 2014). In addition, entrepreneurs in the preparation stage need to determine the funding goal, the funding duration, the target group, and what rewards will be available to the crowd (Kunz et al., 2017).

Extant research shows that these campaign characteristics can impact the success of the crowdfunding campaign and thus must be given careful consideration. For example, Hakenes and Schlegel (2014) find that backers use the funding goal as a decision-making tool. In projects with lower funding goals, backers might feel that their contribution makes an impact in getting the overall amount financed. On the other hand, backers might reason in projects with a higher funding goal that their contribution is not going to make a difference in achieving the predefined goal (Cordova et al., 2015; Hakenes & Schlegel, 2014). With regard to project duration, that is, the number of days a project is live for funding on the crowdfunding platform, Mollick (2014) finds that a longer duration decreases the chance of a successful funding. The author states that backers might assume a lack of confidence from the entrepreneur if the project is live for a long time (Mollick, 2014). Using different reward levels provides backers with several reward options they can choose from. According to Sewaid et al. (2021), the reward level generates additional information about the product and thus signals that the entrepreneur thoroughly planned the

designing or manufacturing of the reward. This consequently influences the investment decision of backers.

After the campaign characteristics have been determined, the entrepreneurs send an application with personal and project-related information to the crowdfunding platform. Here, the platform works as an intermediary as the decision to whether a project is published on the crowdfunding platform rests solely with the platform operators (Bouncken et al., 2015). The platforms typically check the campaign applications for appropriateness on the basis of their platform criteria to ensure the protection of the platform and the crowd (Sixt, 2014). Once the platform has approved the campaign, the entrepreneurs craft the campaign website. In addition to a textual project description, entrepreneurs can also use images and a pitch video to visualize the project idea (Brooks et al., 2014).

Funding stage

As soon as the campaign page has been crafted and goes live for funding on the platform, the funding stage begins. In this stage, entrepreneurs typically use social media channels such as Facebook, Twitter or Instagram to attract attention for their campaign (Bouncken et al., 2015; Sixt, 2014). Moreover, the funding stage involves the interaction with the crowd, where entrepreneurs clarify questions from potential backers and share information about the current state of the campaign (Thies et al., 2016; H. Zhang & Chen, 2019).

Previous research addresses how this interaction affect crowdfunding success. For example, Kromidha and Robson (2016) examined how the number of updates by the entrepreneur and the number of comments by backers determine a campaign's funding success. They find that the number of comments on the campaign's comment section positively correlates with the capital raised per backer. In contrast, the number of updates during and after the funding stage does not affect fundraising. The authors argue that this one-way signal from

the entrepreneur is less significant compared to an interaction-based signal, e.g. from the comment section in which the entrepreneur and backers share ideas.

If a potential backer decides to pledge to a campaign, he or she transfers money to the platform, which deposits the pledge in an escrow account for the time the campaign is live for funding (Bouncken et al., 2015; Moritz & Block, 2014). In the "all-or-nothing" principle, the entrepreneur receives the funding if he or she is able to reach or exceed the predefined funding goal (e.g. USD 50,000) at the end of the campaign. If the funding goal is not reached, the pledges are paid back in full to the backers. If the platform uses the "keep-it-all" principle, entrepreneurs keep the amount raised regardless of the financial goal (Cumming et al., 2015).

Implementation stage

In case of a successful funding, the implementation stage begins in which the entrepreneurs try to bring their projects to life with the help of the financial resources from the crowd. Communication between entrepreneurs and backers is maintained via the platform as backers are informed about the progress of the project through the comment and update section of the campaign website (Thies et al., 2016; A. Xu et al., 2014).

The crowdfunding campaign is only considered completed when the entrepreneurs are able to realize the project and the backers receive their rewards. If the entrepreneurs are unable to complete the project as expected and consequently do not deliver the promised rewards, the platforms' terms of use typically require the entrepreneurs to inform the backers and offer an adequate compensation, e.g. a refund. However, the platforms do not assume responsibility in that case, as the responsibility for all published information lies solely with the entrepreneurs (Belavina et al., 2020).

2 Research objectives and development of research questions

The factors that drive crowdfunding performance are multifaceted and depend amongst others on the campaign characteristics as outlined above and on the entrepreneur's approach how to market and present the project. This dissertation aims to identify the features that attract backers concerning the language entrepreneurs use to present their projects on a crowdfunding platform.

Words are a powerful tool for entrepreneurs to get a compelling message across that helps them to target a specific audience. To do so, however, they need to adapt a language which resonates with the audience and consequently persuades them to act in an intended way. This applies especially for entrepreneurs who launch a campaign on a crowdfunding platform to secure funding for a project (Peng et al., 2021). Advancements in content analysis methods such as computer aided text analysis software help to systematically analyze large amounts of text to unravel the underlying dynamics of language. Given the economic importance of crowdfunding in venture financing and the relatively low campaign success rate of ca. 39% on e.g. Kickstarter (Kickstarter, 2022d), researchers are primarily interested in how these insights into what resonates with backers helps entrepreneurs to better craft their crowdfunding campaigns and be more successful. This dissertation investigates research questions on this matter and presents them in more detail in the following.

On reward-based crowdfunding platforms, entrepreneurs are typically able to present their projects through text and video. As this serves as the main source of information for backers, text- or visual-specific signals are a popular research subject for crowdfunding scholars. Concerning the textual campaign description, existing studies have found that the use of a positive narrative tone (Allison et al., 2017), or the clearness and precision of the linguistic style (Parhankangas & Renko, 2017) signals underlying project quality to

backers. On the other hand, concerning the use of visuals, Mollick (2014) investigates how the presence of a video affects funding success. He finds that not including a video in the campaign reduces the chances of being funded successfully by 26%. Building on these findings, Kunz et al. (2017) examine how the number of videos featured in the campaign affect its performance. They provide empirical evidence that an increasing number of videos increases the likelihood of funding success. Both Mollick (2014) and Kunz et al. (2017) argue that providing a video pitch can be an indicator of a professional campaign preparation and thus act as a quality signal.

While the significance of featuring a video pitch is thoroughly examined, little is known about linguistic signals stemming from this source of information and their role in the decision-making process of backers. Allison et al. (2017) find that visuals such as video pitches attract the attention of backers. Only if these visuals resonate with backers, the textual description becomes relevant. Thus, backers perceive signals from different sources such as video or text differently. To better understand how different signal sources impact the signal's effectiveness and consequently the decision-making process of backers, the first essay of this dissertation provides the following research question.

RQ1: *Among text-based investor signals in crowdfunding projects, what are the comparative signal strengths among linguistic constructs and what informational value does subtitle text contribute to the decision-making of backers above and beyond the text listed in the project description?*

Crowdfunding backers are a different kind of investor (Assenova et al., 2016). They act as an (typically inexperienced) investor and a consumer at the same time and thus follow new rules and watchwords in terms of entrepreneurial finance, which also affect sustainable considerations (Fassin & Drover, 2017). One assumption why crowdfunding contributes to a more sustainable venture financing is based on the direct contact between entrepreneurs

and the crowd, which allows for an unfiltered communication between the two parties. Without the influence of a traditional profit-oriented capital provider, entrepreneurs may be able to communicate sustainable product- or service-features as investment goals which otherwise might have been abolished in venture capital or business angel contract negotiations (Drover et al., 2017; Fassin & Drover, 2017). At the same time, backers might appreciate a sustainable positioning that aligns with their values and ideology. They often take advantage that projects are early stage which allows them to contribute to the entrepreneurial ideas. Here, backers might feel that they contribute to something meaningful, which is clearly communicated and realized in a timely manner (Calic & Mosakowski, 2016; Defazio et al., 2020).

While insights into how sustainability affects the pledging behavior of backers is valuable as it helps close the gap between what we know and what we need to know concerning backers' motivation to contribute to a campaign, research on sustainability in crowdfunding is scarce and inconclusive. Hence, drawing on framing theory, we evaluate how linguistic elements at a word-level affect crowdfunding success. In detail, the second research question of this dissertation goes as follows.

RQ2: *How does a pro-social or pro-environmental orientation in the entrepreneurial narrative of a crowdfunding campaign affect crowdfunding performance?*

The term "creative destruction" coined by Schumpeter (1943) describes how the novelty seeking and innovative mindsets of entrepreneurs permanently revolutionize the economy by permanently destroying the status quo. This creative destruction engages investors, as they tend to be excited about radically new products or services that change industry rules and re-think given structures (Navis & Glynn, 2010; Pan et al., 2020; Rindova et al., 2009). The business of crowdfunding platforms such as Kickstarter is to "share new visions" and help bring creative projects to live (Kickstarter, 2020c). Accordingly, novelty is an

overarching theme in crowdfunding which is, however, rather untapped in crowdfunding research. The few existing studies are situated in equity-based crowdfunding or artistic categories in reward-based crowdfunding and present conflicting results concerning the effectiveness of novelty language and crowdfunding performance (Horvát et al., 2018; Wei et al., 2021; B. Xu et al., 2016). We aim to reconcile the previous contradictory picture in previous research and enhance our understanding of novelty language in crowdfunding campaigns.

Conceptually, we draw on language expectancy theory, which considers language to be a rule-governed system that affects the outcomes of communication. Thus, LET explains how communication strategies have a different effect on different audiences based on the social category of the communicator (Burgoon et al., 2002). Crowdfunding is inherently heterogeneous because backers are globally dispersed, crowdfunding categories on the platforms are numerous, and funding goals range from $1 to $1m (with a recent record breaker raising a total amount of $42m on Kickstarter (Kickstarter, 2022c)). Language expectancy theory corresponds to this heterogeneous nature and explains how language in crowdfunding projects has different effects on different backers based on the social category of the entrepreneur. Accordingly, the third research question of this dissertation is as follows.

RQ3: *How does the promotion of novelty language in crowdfunding campaigns affect funding success and backer mobilization?*

3 Overview of the studies and additional remarks

This cumulative dissertation comprises three separate studies which aim to answer the previously presented research questions. All three studies provide insights into what drives decision-making in reward-based crowdfunding. In detail, the first study deals with investor-related signals from different signal sources, the second study with a sustainability orientation, and the third study with novelty language. Table A-1 provides key characteristics of the studies.

Table A-1: Key characteristics of the three studies

	Title	Research Objective	Sample	Methodology	Theoretical Perspective
Study 1	It's all in the (Sub-) title? Expanding Signal Evaluation in Crowdfunding Research.	Compare and contrast the strength of entrepreneur's text-based signals and examine the informational value of transcribed video pitches.	Characteristics, descriptions, and transcribed video pitches of 1,049 crowdfunding campaigns	Logistic regression	Signaling Theory
Study 2	The Effects of Pro-Social and Pro-Environmental Orientation on Crowdfunding Performance	Assess the effect of a pro-social or pro-environmental orientation on crowdfunding performance and analyze the moderating effect of project creativity.	Characteristics, descriptions, and transcribed video pitches of 1,049 crowdfunding campaigns	Logistic and linear regression with interaction effects	Framing Theory (Social Movement)
Study 3	The role of novelty language in mobilizing backers and securing funding in reward-based crowdfunding	Analyze the effect of novelty language on crowdfunding success and backer mobilization and how the entrepreneur’s gender moderates backer mobilization.	Characteristics, descriptions, and transcribed video pitches of 1,294 crowdfunding campaigns	Logistic and linear regression with interaction effects	Language Expectancy Theory

Additional remarks

The studies in this dissertation are at different stages in the publication process. The first study was presented at a conference and published in the corresponding peer-reviewed proceedings as a short paper. For this dissertation, the study was extended to a full-length paper. While the second study was presented at a conference and published in an international peer-reviewed journal, the third study is in a working paper status.

Study 1: von Selasinsky, C., & Isaak, A. J. (2020). It's all in the (Sub-) title? Expanding Signal Evaluation in Crowdfunding Research, published in: *Proceedings of the European Conference on Information Systems (ECIS)*, Vol.56. (Journal Impact Factor: n.a., VHB-JQ3-Rating: B).

Share of contribution: Constantin von Selasinsky (70%), Andrew Isaak (30%).

Academic conference:

- 28th European Conference on Information Systems - Liberty, Equality, and Fraternity in a Digitizing World, ECIS 2020, Marrakech, Morocco (online conference due to the coronavirus pandemic), June 15-17, 2020.

Study 2: von Selasinsky, C., & Lutz, E. (2021). The Effects of Pro-Social and Pro-Environmental Orientation on Crowdfunding Performance. Sustainability, 13(11), 6064. (Journal Impact Factor: 3,25, VHB-JQ3-Rating: C).

Share of contribution: Constantin von Selasinsky (85%), Eva Lutz (15%).

Academic conference:

- 23rd Annual Interdisciplinary Conference on Entrepreneurship, Innovation and SMEs (G-Forum), Vienna, Austria, September 25-27, 2019.

Study 3: von Selasinsky, C., & Lutz, E. (2022). The role of novelty language in mobilizing backers and securing funding in reward-based crowdfunding. Working paper.

Share of contribution: Constantin von Selasinsky (90%), Eva Lutz (10%).

B. Study 1: It's all in the (sub-)title? Expanding signal evaluation in crowdfunding research[1]

1 Introduction

Startups face both liability of newness and liability of smallness (Hyytinen et al., 2015), which typically go hand in hand with resource constraints. Therefore, a key challenge faced by entrepreneurs worldwide is financing the venture, particularly through conventional means (e.g., venture capital). Crowdfunding is an alternative type of project financing where a large and dispersed online audience contributes small financial amounts in exchange for tangible or intangible rewards. Crowdfunding differs from traditional seed finance and bank loans by attracting small investments from less sophisticated investors in a computer-mediated online setting. Hereby entrepreneurs try to persuade a largely anonymous crowd of online (micro-) investors to support or "back" their budding venture.

After its launch into mainstream practice with the founding of the Kickstarter platform in 2009, crowdfunding research has emerged as a growing major area of entrepreneurial finance research with over 65 publications in top journals in the last 5 years. As such, the phenomenon has attracted the attention of scholars from different fields who defined the concept (Mollick, 2014), explored various factors affecting success rates (e.g., Agrawal et al., 2015; Courtney et al., 2017) and sought to understand the theoretical mechanisms behind the process and actions of the participants (e.g., Belleflamme et al., 2013; B. Xu et al., 2016) and the effect on industries (e.g., Gamble et al., 2017).

Research on crowdfunding success that incorporates CATA (computer-aided text analysis) is quickly advancing to the big leagues (e.g., Anglin, Short, et al., 2018; Moss et al., 2018; Parhankangas & Renko, 2017) and is often theoretically based on information asymmetry,

[1] This chapter is co-authored by Andrew Isaak, was presented at the 28th European Conference on Information Systems, and published in the Proceedings of the European Conference on Information Systems, Vol.56.

impression management or signaling (e.g., Ahlers et al., 2015). Signaling theory (Spence, 1978) posits that actors overcome information imbalances (asymmetries) by sharing information in the form of signals, which have to be both observable and costly to be effective (e.g., Connelly et al., 2011).

Current crowdfunding research elaborates on constructs to show the interplay and dynamics between signals and seeks to evaluate the effectiveness of various investor signals (e.g., visual and textual) across different settings (e.g., Allison et al., 2017; Scheaf et al., 2018). Yet, current papers exploring crowdfunding success criteria fail to take advantage of the full breadth of investor signals available for study. In this paper, we compare and contrast the strength of the entrepreneur's text-based signals to project backers while increasing the scope of information available for content analysis by utilizing transcribed video subtitles. The objective of our study is to answer the following research question: Among text-based investor signals in crowdfunding projects, what are the comparative signal strengths among linguistic constructs and what informational value does subtitle text contribute to the decision-making of backers above and beyond the text listed in the project description?

Based on a random sample of crowdfunded technology projects from the Kickstarter platform, our study finds that incorporating subtitle information increases the variance explained by the respective regression models and therefore their predictive capability for funding success. Our paper contributes to linguistic research on crowdfunding (e.g., Davis et al., 2017), deception detection (Zhou et al., 2004) and artificial intelligence (Biyani et al., 2016; Mairesse et al., 2007). By expanding the information landscape, our work advances the field and paves the way for more fine-grained studies of success signals in crowdfunding and therefore for an improved understanding of investor decision-making in the crowd.

2 Theory and Hypotheses

Following uncertainty reduction theory, exchanging and collecting information on each other reduces uncertainty and allows one to predict others' attitudes and behaviors (Berger & Calabrese, 1974). In initial encounters, strangers follow specific verbal and nonverbal steps to create positive impressions on others, and to facilitate their judgments about people and situations. Since in crowdfunding, entrepreneurs typically have only one chance to make a first impression, successful crowdfunding campaigns are strongly determined by entrepreneurs' effective communication (Agrawal et al., 2015; Davis & Webb, 2012), which can mitigate the information asymmetry between entrepreneurs and investors in the crowd in a setting where the parties do not know each other (Block et al., 2018; Moss et al., 2018).

Although crowdfunding backers typically have high-level expertise concerning technological matters, they are exposed to uncertainty when it comes to the entrepreneurs' technical skills and abilities (Ghatak et al., 2007). Crowdfunding campaigns are projects in the making where designs and prototypes are usually at an early stage (Stanko & Henard, 2017). Accordingly, the feasibility of crowdfunding campaigns is uncertain at the time of pledging and backers bear the risk of a worst-case scenario where they do not receive a reward and their investment is not refunded (McKenny et al., 2017).

Moreover, Mollick and Kuppuswamy (2014) find that more than 75 percent of successfully funded crowdfunding campaigns deliver their rewards later than scheduled, with popular and overfunded campaigns being most likely to be delayed. Thus, pledging to a crowdfunding campaign and receiving the actual product or service is uncertain or temporally far apart, which is why backers have a strong incentive to look for signals that predict crowdfunding success and thus reduce the risk of a non-relevant investment (Ahlers et al., 2015; Mollick, 2013).

2.1 Signaling in Crowdfunding

Following from signaling theory (Ahlers et al., 2015; Connelly et al., 2011; Spence, 1978) effective communication on behalf of the entrepreneur in his or her campaign project descriptions or video pitches are signs of project quality, the entrepreneur's professionalism, or trustworthiness. For example, Gafni et al. (2019) show that entrepreneurs who mention themselves in the campaign description are perceived as competent and trustworthy. Thus, these crowdfunding campaigns are more likely to receive funding. Allison et al. (2017) find that crowdfunding performance is positively affected by linguistic cues related to the entrepreneur's education and experience, as it persuades backers to pledge to a campaign.

However, prior research indicates different views of how these signals are conveyed most effectively to backers. In this regard, extant research shows different findings regarding the impact of linguistic information from texts and visuals. Parhankangas and Renko (2017) find evidence that commercial entrepreneurs are well-advised to signal firm, entrepreneur, and product-specific signals through campaign text. Allison et al. (2017) however demonstrate that backers' initial attention is triggered by visuals such as video pitches. Only if these visuals are interesting to backers, does the textual description become relevant. In conclusion, the media used in a crowdfunding campaign effects how and when signals are perceived by backers in the crowd and their source determines their effectiveness.

2.2 Hypothesis Development

A number of linguistic categories have been found to contain informational value for crowdfunding and crowdlending decisions, including textual complexity, affect (i.e., emotionality) and (in)formality (e.g., Allison et al., 2017; S. Zhang et al., 2017). Individuals' evaluations (e.g., decisions whether to back a crowdfunding project) can be shaped by peripheral cues (Crano & Prislin, 2006). For example, research has suggested

that higher complexity in language use negatively effects readability since customers want convenience (Dai, 2007; Forsythe et al., 2006). Overly complex language can therefore inhibit purchase (or donation) intent (Block et al., 2018).

Further, the nature of technology projects is to provide specific, measurable advancements and this domain is characterized by the use of concrete facts and figures (e.g., a drone that reaches an altitude of 500 meters or a car that reaches 0 to 60 in under 3 seconds) (Kickstarter, 2020b). Low specificity has also been linked to deceptive communication (e.g., Burns & Moffitt, 2014) and it is clearly harder to make a good decision on investing in or supporting a new technology without precise information on its usage benefits. Therefore, we posit that:

Hypothesis 1: Language in pitches and project descriptions that displays a) *higher complexity* and b) *lower specificity* negatively predicts crowdfunding success.

The effectiveness of persuasion in communication may be influenced by the presence of affect in the message (Miniard et al., 1991) or even the tone or mood (Yang et al., 2006). Narratives frequently adopt an optimistic, positive tone in an effort to craft a likeable story (Martens et al., 2007), while negative emotionality should be counterproductive.

Further, the use of positive tone increases the chance that individuals will be liked by others (Curtis & Miller, 1986) and results by (Allison et al., 2017) suggest that this also applies to crowdfunding pitches. As a consequence of computer-mediated communication, entrepreneurs have considerable control over communication and can take time to craft a convincing narrative by editing messages iteratively and are therefore likely to use higher expressivity in their writing. Technology entrepreneurs may even hire or partner with external public relations agencies, which are likely to craft persuasive pitches. Finally,

herding has been linked to emotionality in online investment behavior (e.g., S. Zhang et al., 2017). Therefore, we expect that for technology projects:

Hypothesis 2: Language in pitches and project descriptions that displays a) *lower negative affect* and b) *higher expressivity* positively predicts crowdfunding success.

Professionalism in communication has been frequently linked to successful crowdfunding outcomes (e.g., Agrawal et al., 2015; Davis & Webb, 2012). Whereas formal language can be a sign of high expertise (Heylighen & Dewaele, 1999), informal language can be highly indicative of spam (Biyani et al., 2016) and implies that entrepreneurs did not put in much time or effort into crafting their crowdfunding campaign. Moreover, informal language is typically linked to lower education (Asgari & Mustapha, 2011; Heylighen & Dewaele, 1999). This seems particularly troublesome for technology projects, where backers expect a product or service with specific functionalities as rewards (Mollick, 2014). Therefore, we posit that:

Hypothesis 3: Language in pitches and project descriptions that displays *higher informality* decreases crowdfunding success likelihood.

It has been found that higher uncertainty in language is indicative of deception in asynchronous computer-mediated communication (e.g., Zhou et al., 2004), while linguistic markers of certainty, such as "always" or "never," are strong indicators of truthfulness (Levitan et al., 2018; Rubin et al., 2006). Humans have a strong survival instinct which can drive how we interact with our immediate information environment and often leads us to make decisions based on our gut; however, intuition alone is not a reliable enough guide when making complex decisions, such as whether or not to invest in a specific venture given its current state and campaign narrative (Bonabeau, 2003).

Uncertainty reduction theory (Berger & Calabrese, 1974) suggests that there is a human drive to reduce uncertainty, to explain the world, and to render it predictable; in our context, crowd investors seek additional information related to assets to reduce their risk of making a false decision to support a project (Zafar et al., 2021). At the same time, discrepancies in the entrepreneurs' language are likely to decrease investor confidence. Also, use of discrepancies in language have been found to be related to cognitive processes linked to negative emotions in artificial intelligence research on personality (Mairesse et al., 2007). Therefore, collectively we posit that:

Hypothesis 4: Language in pitches and project descriptions that displays a) *higher textual certainty* and b) *lower discrepancy* positively predicts crowdfunding success.

In this study, we examine the informational value of the full narratives, i.e. project descriptions and the corresponding video pitches. While this approach allows for a full-fledged analysis of the informative power of language in crowdfunding campaigns, we argue that within the setting of technology projects, project descriptions are a stronger predictor of funding success. Kickstarter assists with DIY-instructions for videos suggesting to project creators that "it doesn't have to be super slick" as long as the audience gets a feeling for the character of the project (Kickstarter, 2020b).

However, videos inclusion is not compulsory. Rather, Kickstarter strongly emphasizes providing detailed information on the project page, such as personal information, manufacturing and budget plans and a schedule (Kickstarter, 2020b). Further, projects in the technology category are heavy on specifications and functionality (S. Manning & Bejarano, 2017). While visual cues transport contextual information (e.g., age, attractiveness) technical terms are mostly transmitted in textual form (Scheaf et al., 2018). Therefore, we posit that:

Hypothesis 5a: Project descriptions are a stronger predictor of funding success than transcribed video pitches.

Using 60 manually transcribed video pitches as a benchmark, we compared the respective transcription accuracy on a word level (Ziman et al., 2018). With a hit rate of over 90%, the Otter.ai (hereafter: Otter) service outperformed YouTube's built-in transcription (approximately 85%). We expect that the higher the accuracy of the transcription, the more and the more reliably textual information is captured. Hence, the outcome is closer to the message that was intended to be transmitted and more likely to be interpreted logically. Therefore, we suppose that YouTube subtitles have a lower explanatory power than their Otter counterparts and posit that:

Hypothesis 5b: Subtitle transcription quality positively impacts their predictive ability for crowdfunding success.

3 Data and Methodology

To answer our research question, we first drew a random sample of 1,099 US-based technology projects from the crowdfunding website Kickstarter in 2018. Technology projects were chosen because they are more likely to resemble traditional entrepreneurial ventures (Scheaf et al., 2018). The focus on a single category also improves project comparability. We removed 44 projects that were falsely categorized as US-based but where actually based in China and 6 projects for which their campaign data was missing (e.g., funding goal), resulting in a final dataset of 1,049 projects.

The crowdfunding project video pitches were transcribed using the automated algorithms of the online services YouTube and Otter and merged with textual project descriptions and general project characteristics (e.g., funding goal, number of backers). After pilot testing the subtitling accuracy of various video platforms using a subsample of 60 projects, these

platforms were selected for their high accuracy. Next, computer-aided text analysis (CATA) was conducted using the software LIWC (Pennebaker et al., 2015) together with the built-in content analytic dictionary for English language source material.

3.1 Dependent and Independent Variables

For the purpose of this study, we use the dichotomous variable *funding success* which specifies if a crowdfunding campaign secured enough funding from backers to reach is preset financial goal (Parhankangas & Renko, 2017). The variable *funding success* responds to the all-or-nothing principle of Kickstarter. That is, if a campaign does not secure enough funding to reach said goal while the project is live for funding on Kickstarter, no money is transferred to the entrepreneurs (Kickstarter, 2020a). Since our dependent variable funding success is binary (we coded '1' for successfully funded campaigns and '0' otherwise), we next ran logistic regressions using the linguistic constructs (Kim et al., 2016) based on the project description and transcribed video pitches as independent variables (e.g., complexity, specificity, affect, expressivity, informality, time orientation, certainty, and discrepancy).

For the included linguistic categories that are operationalized below in Table B-1, the internal item consistency (alpha) values reported by the authors of the software ranged between .70 and .84 (Pennebaker et al., 2015), comparatively high values suggesting a high internal consistency of these measures. We also tested for multicollinearity and found that the variance inflation factors were all below 3. Detailed descriptive statistics are provided in Table B-2.

Table B-1: Operationalization of linguistic constructs

Construct	Definition	Selected Measure(s)	Examples
Complexity	The level of syntactical structures used by the sender	# of long words (> six letters)	conductivity, usefulness, innovation
		# of dictionary words	picture, greeting, clockwork
Specificity	The degree to which the sender specifies facts for the conveyed information	# of numbers used	3, 16, 2400
Affect	The degree to which the sender describes or conveys personal emotions in his writing	Emotional tone index (Cohn et al., 2004)	
		# of sadness words	crying, grief, sad
Expressivity	The degree to which the sender colors his writing	# of modifiers (adjectives & adverbs)	free, long, short; very, really
		# of perceptual words	look, heard, feeling
Informality	The degree to which the sender uses markers of informal language	# of informal words (assents, fillers, swear words, netspeak)	OK, yes; imean, youknow; f#ck, damn, sh#t; lol thx
Time orientation	The degree to which the sender is focused on the past, present or future	# of present focus words	today, is, now
Cognitive processes	The degree to which the sender shows conviction or uncertainty in writing	# of certainty words	always, never
		# of discrepancy words	should, would

This table presents the operationalization of the linguistic constructs for H1-H5.

Table B-2: Summary statistics for the linguistic constructs

Variable	Source	Obs.	Mean	S.D.	Min.	Max.
word count	PD	1049	852.95	692.17	6	5395
	OT	660	391.55	410.04	6	5008
	YT	533	367.32	286.81	1	2813
sixltr words	PD	1049	24.49	4.80	8.51	46.26
	OT	660	19.16	5.56	1.56	40.97
	YT	533	18.60	6.92	0	50
dictionary	PD	1049	79.20	6.79	45.96	95
	OT	660	81.71	8.12	33.33	95.53
	YT	533	83.8	7.57	50	100
numbers	PD	1049	2.04	1.38	0	11.99
	OT	660	1.66	1.43	0	13.14
	YT	533	1.63	1.37	0	9.43
tone	PD	1049	71.54	20.96	4	99
	OT	660	72.37	24.47	2.18	99
	YT	533	71.16	25.32	2.39	100
sadness	PD	1049	.16	.27	0	3.45
	OT	660	.16	.36	0	4.95
	YT	533	.16	.37	0	4.57
adjectives	PD	1049	4.41	1.40	0	9.96
	OT	660	4.54	2.13	0	18.52
	YT	533	4.39	2.09	0	13.16
adverbs	PD	1049	3.22	1.24	0	8.51
	OT	660	4.42	2.16	0	12.16
	YT	533	4.26	2.25	0	14.29
perceptual	PD	1049	2.16	1.54	0	11.36
	OT	660	2.66	2.01	0	20
	YT	533	7.02	17.59	0	100
informal	PD	1049	.78	.91	0	9.68
	OT	660	1.55	2.76	.16	33.33
	YT	533	.82	1.15	0	11.48
certainty	PD	1049	1.38	.73	0	4.97
	OT	660	1.48	1.15	0	16.67
	YT	533	1.45	1.03	0	6.56
discrepancy	PD	1049	1.26	.76	0	5.81
	OT	660	1.27	.99	0	7.67
	YT	533	1.29	1.07	0	10

This table presents the summary statistics of the linguistic variables in our regression models.
Note: Summary statistics are presented for the linguistic constructs in the project description (PD)/Otter Subtitles (OT)/YouTube Subtitles (YT).

3.2 Control Variables

Based on the literature, we control for a number of variables. First, we control for the campaign's funding goal. The funding goal serves as a decision-making tool for backers, since they draw information about the campaign from the goal level. Moreover, prior

research finds that campaigns with lower funding goals are more likely to be funded (Cordova et al., 2015). To indicate previous experience with the platform, we control for the number of projects a project creator launched on Kickstarter in the past (Anglin, Wolfe, et al., 2018). Further, we include the media use in terms of both images and pitch videos in our models. When entrepreneurs convey information through media, they demonstrate the technical feasibility and market readiness of their product or service. This serves as an marker of project quality to potential crowdfunding backers (e.g., Courtney et al., 2017).

In line with previous studies, we also control for project duration as the number of days a campaign is live on the Kickstarter website. Mollick (2014) finds that a longer duration decreases the likelihood of being funded successfully. Next, we incorporate the number of project updates to account for the interaction between the entrepreneur and the backers (Wang et al., 2018). We also account for the total amount that was pledged by backers while the campaign was live. This variable specifies if a campaign for example secured no funding at all or exceeded the funding goal. Mollick and Nanda (2016) find evidence that low reward levels are associated with projects that are not funded well by backers. Thus, we include the number of rewards offered to backers. Moreover, our models incorporate if the campaign was created by a team, since Lagazio and Querci (2018) find that campaigns created by teams are more likely to be funded by backers.

Finally, we account for the perceived creativity of the crowdfunding campaign. Creativity lies at the heart of Kickstarter (Kickstarter, 2020c) and is an important product or service characteristic concerning the outcome of crowdfunding campaigns (H. F. Chan et al., 2019). In this study, creativity accounts for products or services that are useful and novel (Hennessey & Amabile, 2010). We assessed the campaigns' creativity with the help of two coders who participated in the university's entrepreneurship courses on master level. Following Loewenstein and Mueller (2016), we used laypeople to assess creativity, because

the typical reward-based crowdfunding backer is a layperson when it comes to investments (Agrawal et al., 2014). However, we provided cues for novel (e.g., paradigm shift) and useful (e.g., functional) so that the coding is based on the same implicit theory of creativity. The cues are tried and tested and applicable to different creativity understandings from different cultures which matches the global nature of crowdfunding backers (Loewenstein & Mueller, 2016). In the coding process, the coders assessed the project descriptions and visuals from a backer perspective without knowing if the project was successful or not. Our interrater reliability based on Cronbach's alpha (Krippendorff, 2018) is at 0.84 and thus above the critical threshold of 0.7. Accordingly, we subsume that the coders followed an identical understanding of creativity when they assessed the campaigns (Davidsson et al., 2006). For a detailed overview of the dependent variable and the control variables, see Table B-3 below.

Table B-3: Overview of dependent variable and controls (n=1049)

Variable	Description	Mean	S.D.	Min	Max
Funding Success	A dichotomous variable indicating if a project reached its goal	0.255	0.436	0	1
Funding Goal	The amount of USD a project aims to fund	58479	209000	5000	5000000
Projects Created	The count of past Kickstarter projects a project creator launched	1.377	1.337	1	26
Video	A dummy variable indicating if the project includes a video pitch	0.824	0.381	0	1
Picture	A dummy indicating use of additional visuals in the description	12.871	18.147	0	131
Duration	The number of days that the funding campaign ran on Kickstarter	37.182	12.417	7	60.042
Updates	The total amount of updates as a natural log	4.66	10.226	0	211
Pledged	The total sum of funds granted to the projects as a natural log	6.39	3.743	0	14.96
Reward level	The amount of different rewards a project offers to backers	6.52	4.338	1	33
Team	Coded "1" if several people collaborate on a project, "0" otherwise	0.294	0.456	0	1
Creativity	Describes the perceived creativity of the project, rated low to high	1.751	0.748	1	3

This table presents the summary statistics of the dependent and the control variables in our regression models.

4 Results

We interpret our results for hypotheses 1-4 based on the regression of our linguistic constructs on crowdfunding success (Model 2). For hypothesis 1, we find that higher use of dictionary words is negatively related to crowdfunding success (-0.120, p<.001), which is in line with our hypothesis on a) *complexity*, while the use of longer words is not significant. Similarly, we find that the higher use of numbers in text (our measure of b) *specificity*) positively predicts funding success as hypothesized (0.236, p=.001).

As predicted in hypothesis 2, we find that sadness words, our measure of a) *lower negative affect* is indeed positively related with our dependent variable (-1.516, p=.003), while use of adjectives, adverbs, and perceptual verbs (our measures of b) *expressivity*) is positively related to funding success (0.213, p=.003; 0.210, p<.021; 0.252, p<.001). Further, we find that higher use of *informal language* decreases the likelihood of crowdfunding success (-0.941, p<.001) as predicted in hypothesis 3. Regarding the linguistic category cognitive processes in hypothesis 4, we find that a) *higher certainty* (0.528, p<.001) and b) *lower discrepancy* (-0.422, p=.007) in project descriptions and transcribed pitches predict crowdfunding success as predicted. Tables B-4 provides the results of our hypothesis tests for our dependent variable *Funding Success.*

Finally, comparing across models, we find that the McFadden's R square for Model 2 (0.289), which regresses the linguistic constructs in project descriptions and funding success, is higher than that for Models 4 (0.117) and 6 (0.109), for which the transcribed video pitches from YouTube and Otter serve as a basis for the linguistic variables. As predicted in hypothesis 5, we can conclude that project descriptions are a stronger predictor of funding success than transcribed video pitches.

Table B-4: Regression Results, Models 1-7 (DV: Funding Success)

Model	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Variable	Controls	Proj.Desc.	Controls& Proj.Desc.	Otter	Controls& Otter	YouTube	Controls& YouTube
goal	-0.000*** (0.000)		-0.000*** (0.000)		-0.000*** (0.000)		-0.000*** (0.000)
created	-0.133 (0.088)		-0.138 (0.103)		-0.132 (0.111)		-0.192* (0.108)
video	-0.453 (0.948)		-1.031 (1.066)				
picture	-0.003 (0.014)		-0.009 (0.016)		-0.002 (0.018)		-0.022 (0.020)
duration	-0.070*** (0.024)		-0.090*** (0.029)		-0.111*** (0.036)		-0.124*** (0.044)
updates	0.189*** (0.055)		0.291*** (0.073)		0.335*** (0.082)		-0.308*** (0.097)
log pledged	2.488*** (0.324)		2.795*** (0.401)		2.972*** (0.532)		4.038*** (0.869)
reward levels	0.079 (0.062)		0.139** (0.069)		-0.005 (0.078)		0.027 (0.104)
team size	-0.17 (0.451)		-0.011 (0.539)		0.192 (0.599)		0.565 (0.761)
creativity	0.745** (0.364)		1.012** (0.460)		0.957* (0.495)		1.414** (0.642)
word count		0.001*** (0.000)	-0.000 (0.000)	0.000 (0.000)	-0.003*** (0.001)	0.000 (0.000)	-0.003 (0.002)
sixletter words		-0.008 (0.023)	0.192* (0.076)	-0.012 (0.020)	0.071 (0.068)	-0.031 (0.021)	0.1 (0.070)
dictionary		-0.120*** (0.018)	0.031 (0.058)	-0.095*** (0.017)	0 (0.054)	-0.097*** (0.019)	0.027 (0.058)
numbers		0.236*** (0.072)	0.610*** (0.229)	0.126* (0.068)	0.488* (0.289)	0.176** (0.075)	0.820** (0.387)
tone		0.019*** (0.005)	0.028* (0.017)	0.012*** (0.004)	-0.005 (0.016)	0.009* (0.005)	-0.041** (0.021)
sadness		-1.516*** (0.517)	-1.511 (1.573)	-0.322 (0.322)	-0.719 (1.041)	-0.045 (0.319)	-0.366 (1.213)
adjectives		0.213*** (0.072)	-0.083 (0.210)	0.187*** (0.046)	0.157 (0.167)	0.160*** (0.056)	0.338 (0.256)
adverbs		0.210** (0.091)	0.439* (0.250)	0.06 (0.051)	0.112 (0.181)	0.083 (0.059)	0.274 (0.229)
perceptual		0.252*** (0.056)	-0.2 (0.131)	0.154*** (0.046)	-0.263** (0.132)	0.025** (0.010)	0.001 (0.038)
informal		-0.941*** (0.176)	-1.302*** (0.438)	-0.161*** (0.053)	0.101 (0.225)	-0.053 (0.101)	-0.052 (0.347)
certainty		0.528*** (0.132)	0.358 (0.394)	0.125 (0.077)	0.145 (0.301)	0.161 (0.104)	-0.231 (0.402)
discrepancy		-0.422*** (0.157)	0.199 (0.492)	0.047 (0.101)	-0.332 (0.366)	-0.088 (0.113)	-0.134 (0.501)
Obs.	1049	1049	1049	660	660	533	533
Pseudo R^2	0.871	0.289	0.896	0.117	0.889	0.109	0.899
Standard errors are in parenthesis, $*** \ p < 0.01, ** \ p < 0.05, * \ p < 0.1$							

This table presents the results of the regression models. Standard errors are in parentheses. The symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Based on our own experience and analysis of a subsample of professionally transcribed video pitches, Otter's machine-learning-based transcription algorithm is clearly superior to that of YouTube. We were therefore surprised to find that when comparing Model 3 with Models 5 and 7, which include our general project control variables, this increase in McFadden's R square holds only for Otter but not for YouTube. That is, the linguistic constructs based on the crowdfunding project descriptions together with the control variables explain more than the video pitches transcribed by Otter together with the control variables, but this is not the case when the same video pitches are transcribed by YouTube. Therefore, we must reject our hypothesis that subtitle transcription quality positively impacts their predictive ability for crowdfunding success (**H5b**).

5 Discussion and Implications

A key challenge to crowdfunding success is the entrepreneurs' effective communication to mitigate the information asymmetry between entrepreneurs and backers in an online setting where the parties do not know each other. Thus, we compare and contrast the strength of the entrepreneur's textual success signals to project backers within the technology category by taking advantage of the full breadth of signals available.

First, the results of the effects of our linguistic constructs on crowdfunding success in technology ventures (H1-H4) largely confirm our predictions and fall in line with previous literature on artificial intelligence (Biyani et al., 2016; Mairesse et al., 2007), deception detection (Zhou et al., 2004) and crowdfunding (Davis et al., 2017). Backers appreciate narratives that are comprehensible and convenient (e.g. stating clear facts), feature a clear message with a positive tone, and indicate professionalism.

Further, to the best of our knowledge, we provide the first direct evidence that project descriptions have higher predictive capability and thus signal strength for crowdfunding success than video subtitles. However, video subtitles provide additional informational

which might be valuable when trying to understand the decision making of crowdfunding backers. We find that incorporating subtitle information increases the variance explained by the respective models and therefore their predictive capability for funding success. This result responds to the findings of Allison et al. (2017), who suggest that the media used in a crowdfunding campaign effects how signals are perceived by backers.

Moreover, our finding that automatic transcription quality of video pitch subtitles by both YouTube and Otter provide close approximations of human coded transcription for the purposes of big data analytics is a valuable insight for the IS community and for linguistic research on crowdfunding and related fields. Methodologically, our results imply that the widely adopted practice in crowdfunding literature of analyzing only project descriptions serves as an approximation of the full narrative, but does not reflect the entire information basis a potential backer takes into consideration when browsing through crowdfunding campaigns. For the IS community, we provide the insight that researchers transcribing pitches are well served by using automated approaches, with little added value provided by manual transcription over AI for big data purposes.

By expanding the information landscape regarding factors that determine a successful crowdfunding campaign, our work advances the field and paves the way for more fine-grained studies of success signals in crowdfunding and therefore for an improved understanding of venture funding decisions in the crowd. Enlarging the data available for CATA also reduces the risk of findings due to chance, helping to overcome a current weakness in crowdfunding research. Our study also has practical implications. First, project creators can incorporate the uncovered linguistic signals in the study to better craft their campaign narratives and improve their chances of funding success. Further, the study implies that subtitle quality is a viable and observable investor signal for campaign quality

for both project backers and crowdfunding platforms at large. This could be used to better detect both high quality and fraudulent projects.

6 Limitations and Future Research

Our research has certain limitations that open up avenues for future work. First, we only focus on reward-based crowdfunding. Future research could evaluate if the signals we studied apply to other crowdfunding contexts (Agrawal et al., 2016). We would be interested if our findings can be replicated in an equity-based crowdfunding setting, where backers typically invest more long-term oriented (Collins & Pierrakis, 2012).

Moreover, our study analyzes campaigns posted on Kickstarter in the technology category. However, other platforms such as Indiegogo have unique features which is why our findings may not generalize beyond this platform. For example, Kickstarter works on an all-or-nothing basis which means that if a campaign does not reach its predefined financial goal by the deadline, no funds will be collected. If a campaign however exceeds its goal, it receives all of the money pledged by backers (Kickstarter, 2020a). Indiegogo works on the keep-it-all principle under which entrepreneurs receive the money that was pledged by backers regardless of the predefined campaign goal (Kunz et al., 2017). Thus, future research can expand on our work by comparing and contrasting our findings across platforms.

C. Study 2: The Effects of Pro-Social and Pro-Environmental Orientation on Crowdfunding Performance[2]

1 Introduction

In reward-based crowdfunding as an alternative type of venture financing, project backers are entitled to a non-financial reward in exchange for their contribution. Typically, the reward is the product or service, which the crowdfunding project aims to develop or market through the funding (Cumming et al., 2015). Thus, project backers intend to consume the products or services from the projects they finance, which is why they are coined as a "different kind of investor" (Assenova et al., 2016). Since backers behave like typical consumers, they are driven by a broad set of motivations distinct from that of traditional investors (Cholakova & Clarysse, 2015; Schwienbacher & Larralde, 2010), also in terms of sustainable considerations (Lehner, 2013). However, empirical evidence on sustainability in crowdfunding is limited and inconclusive. Researchers found that crowdfunding projects that promote a sustainable orientation can increase the probability of crowdfunding success (Allison et al., 2015; Calic & Mosakowski, 2016; Defazio et al., 2020; Moss et al., 2018), while other researchers find no such effect (Cholakova & Clarysse, 2015) or even a negative relationship (Hörisch, 2015). Our study aims to help reconcile the contradictory findings on the relationship between a sustainable orientation and the outcome of crowdfunding projects. In detail, we shed light on how promoting a sustainable orientation affects crowdfunding performance. This helps to better understand the pledging behavior of backers and contributes to the discussion about resource mobilization in reward-based crowdfunding.

[2] This chapter is co-authored by Eva Lutz, was presented at G-Forum 2019, and published in Sustainability, 13(11), 6064.

We identify a sustainable orientation in a crowdfunding project when it demonstrates the awareness of social and environmental values, such as social and ecological fairness and justice (Brickson, 2007). Our selection of social and environmental categories aligns with prior literature about sustainability and meets the conditions to account for sustainable development (Hall et al., 2010). In entrepreneurship research, the goal of sustainable development is to sustain communities (social dimension) as well as life support systems and nature (environmental dimension) (Shepherd & Patzelt, 2011). To conceptualize the effects of pro-social and pro-environmental orientation on crowdfunding performance, we employ the theoretical lens of framing. Frames function as cognitive shortcuts that enable individuals to "locate, perceive, identify, and label" occurrences and interpret information in any given situation (Goffman, 1974). More precisely, we draw on the meso level literature stream of social movements to explain how linguistic framing mobilizes individuals. Similar to social movements, the success of crowdfunding campaigns depends on collective action by a dispersed crowd (Nielsen, 2018). Just as social movement leaders try to engage a crowd around a cause to mobilize resources, a crowdfunding project creator seeks to find support for his or her crowdfunding campaign (Nielsen & Binder, 2020). Following the call for research by McKenny et al. (2017) to incorporate resource mobilization theory regarding social movements in crowdfunding, we apply linguistic framing as outlined by social movement theorists to examine how the selection is enabled and action is guided in a crowdfunding setting.

In particular, our study offers three contributions. First, we add to literature concerned with factors that determine crowdfunding success and demonstrate how the emphasis of a pro-social or pro-environmental orientation affects the outcome of a crowdfunding campaign. By treating the social and environmental dimensions as psychologically distinct, we contribute to a more nuanced understanding of sustainability in crowdfunding. Second, we

improve the methodological approach to measure pro-social or pro-environmental orientation in crowdfunding narratives. We collect both the textual description and transcribed video pitches of crowdfunding campaigns to minimize measurement errors that potentially occur in content analysis. Third, we support the findings of previous studies about the effect of entrepreneurs' language on resource mobilization. Furthermore, we advance the understanding of how the relationship between linguistic framing and the outcome of a crowdfunding project depends upon the product or service characteristics under which the framing is initiated and implemented.

Our study captures the social and environmental orientation as linguistic constructs using a content analysis algorithm that assesses the pro-social or pro-environmental framing of a project based on using cues expressing a pro-social or pro-environmental orientation. We employ the computer-aided text analysis (CATA) tool CAT Scanner (McKenny et al., 2012) for a sample of 1049 reward-based crowdfunding projects from Kickstarter. We find that the level of pro-social or pro-environmental orientation has an inverted U-shaped effect on crowdfunding performance. Thus, framing a crowdfunding project as pro-social or pro-environmental can be beneficial. Yet, entrepreneurs should be aware that overemphasizing a pro-social or pro-environmental orientation may backfire and reduce the probability of crowdfunding performance. This suggests that backers prefer moderate levels of pro-social or pro-environmental orientation in crowdfunding projects. Moreover, we demonstrate that the inverted U-shaped relationship between the level of pro-social orientation and crowdfunding performance differs between projects that do not demonstrate a creative product or service idea and those that do. Our findings help entrepreneurs craft their campaign narratives and create an appealing entrepreneurial narrative for both the textual description and the video pitch. This may contribute to sustainable crowdfunding projects being more successful and thus develop their full potential for society and the environment.

The following section presents an overview of the extant literature on sustainable orientation in crowdfunding and the theoretical background, which serves as a basis to develop our research hypotheses. We describe our dataset and methods in Section 3 and present the results of the empirical analysis in Section 4. In Section 5, we compare our findings to previous research, address our contributions, and shed light on the limitations of this study that offer opportunities for future research.

2 Theoretical Background and Hypothesis Development

2.1 Crowdfunding and Sustainability

The antecedents of crowdfunding performance have been the subject of entrepreneurship scholars for the last decade (Moritz & Block, 2016). Extant research focused on the multifaceted motivations of backers and the different crowdfunding models to explain how project orientation affects funding success (Fisk et al., 2011). One research area that is particularly contested is how intrinsic motivations and a pro-social or pro-environmental project orientation influences backers' support. For instance, Allison et al. (2015) assess how linguistic cues that frame a venture as either a business opportunity or an opportunity to help others affect crowdfunded microfinancing. They propose that in a microlending context, lenders combine extrinsic factors representing traditional investment motives and intrinsic factors attached to altruistic decisions. By analyzing microloans placed on the crowdfunding platform Kiva.org, they find that lenders prefer ventures highlighting a pro-social orientation over ventures that demonstrate a business opportunity. Building on these findings, Moss et al. (2018) explore if crowdfunding lenders prefer ventures that communicate economic and pro-social values in their narratives simultaneously or if they prefer a clear positioning in either social or economic realms. Their results demonstrate that ventures that position themselves through linguistic cues in a specific context are more successful with allocating resources.

However, the results of the studies by Allison et al. (2015) and Moss et al. (2018) reflect funding motivation based on language cues on the crowdfunding-based microlending platform Kiva. On this platform, lenders are not protected against loan default and do not receive any interest payments. Since loans on Kiva are intended to help the disadvantaged and lenders indirectly donate their interests to cover the platform's overhead, Galak et al. (2011) argue that lending motivation on Kiva is inherently pro-social. Thus, these findings are embedded in a unique context that cannot be generalized for other forms of crowdfunding. Consequently, Cholakova and Clarysse (2015) find different results using an experimental setting to explore how crowdfunding pledging decisions are influenced by the presence of financial and non-financial motivations in equity- and reward-based crowdfunding. The experiment participants were to decide whether they would pledge (as in reward-based crowdfunding) or invest (as in equity-based crowdfunding) in a fictive crowdfunding campaign. The authors find no empirical evidence that the decision to fund or pledge to ventures is altruistically motivated by the willingness to help others.

Hörisch (2015) finds similar results for reward-based crowdfunding campaigns initiated and marketed as environmentally oriented on the platform Indiegogo. The author does not find a positive connection between environmental orientation and crowdfunding success but rather suggests that featuring an environmental orientation can be detrimental. While Hörisch (2015) identifies environmental campaigns solely on the basis that they were assigned to the environmental category on Indiegogo, Calic and Mosakowski (2016) follow a different approach and examine campaigns on the reward-based platform Kickstarter through a coding scheme to identify a social or environmental orientation. By social or environmental orientation, the authors understand that crowdfunding campaigns indicate primarily social or environmental objectives. Calic and Mosakowski (2016) find that a social or environmental orientation positively affects the funding success of crowdfunding

campaigns in the technology category. However, the authors divide their sample into campaigns assigned either to social entrepreneurship or to traditional for-profit ventures. Hence, their results show how social entrepreneurship takes a stand in reward-based crowdfunding compared to supposedly for-profit ventures. In this case, "supposedly" refers to what is lost in the approach of Calic and Mosakowski (2016) in the continuum between zero (business venture) and one (social enterprise): for-profit crowdfunding projects that incorporate pro-social or pro-environmental elements.

Defazio et al. (2020) address this shortcoming by using scores that also allow conclusions drawn on the effect of different levels of a pro-sustainable orientation. For this, the authors measure the frequency of words related to a sustainability orientation in reward-based crowdfunding campaigns and weigh them in relation to the text length.

They find that the probability of successful funding increases for small levels and decreases for large levels of pro-sustainable orientation. In summary, the findings of Defazio et al. (2020) suggest that the relation between pro-sustainable orientation and crowdfunding success is curvilinear, that is, positive for moderate emphasis and negative for high emphasis on pro-sustainable orientation.

This brief overview of prior research on social and environmental orientation in crowdfunding campaigns reveals two research gaps our study aims to address. First, the studies depicted above focus on either a social (e.g., Cholakova & Clarysse, 2015) or an environmental (e.g., Hörisch, 2015) dimension or blend the two dimensions (e.g., Allison et al., 2015; Defazio et al., 2020; Moss et al., 2018). Moreover, the studies are set in different crowdfunding forms (e.g., reward-based and lending-based) on different platforms (e.g., Kickstarter and Kiva), which does not allow their findings to be aggregated into one conclusive image for reward-based crowdfunding, as the underlying motivations to participate in the respective forms vary from one another. Although Calic and

Mosakowski (2016) indicate the presence of a social or an environmental orientation separately, they merely use their respective presences as an indicator to assign these campaigns to the social entrepreneurship category (Perrini, 2006) and compare them to their for-profit counterparts. In conclusion, to our knowledge, no study to date separately evaluates the conditions for supporting reward-based crowdfunding projects that feature a pro-social or pro-environmental orientation. We believe that treating the social and environmental dimensions as psychologically distinct contributes to a more nuanced understanding of sustainability in crowdfunding. While Choi and Ng (2011) find that prior research "does not offer an examination of the notion that different dimensions of sustainability can exist in the minds of consumers," studying Catlin et al. (2017) demonstrates that consumers evaluate the two dimensions differently. While a social dimension is associated with an orientation that is short-termed and local, an environmental orientation is perceived to be long-termed and global. Compared to researchers, who operationalize sustainability as a unidimensional construct, taking into account the multidimensionality of sustainability and measuring their relative importance allows a better understanding of backers' pledging behavior.

Second, the studies of Allison et al. (2015), Moss et al. (2018), and Defazio et al. (2020), which are based on language analysis, all make use of the campaign narratives. In a crowdfunding context, narratives can be referred to as the story told about the entrepreneur and his or her project (Martens et al., 2007). Allison et al. (2015) and Moss et al. (2018) assess crowdfunding projects on the micro-lending platform Kiva, whose homepage structure only allows campaigns to publish text and a picture (Schwittay, 2019). Consequently, the authors use the textual campaign descriptions as narratives to apply their respective linguistic cues. Besides a textual description and pictures, the reward-based crowdfunding platform Kickstarter also allows a video pitch to be incorporated into the

campaign (Mollick, 2014). Video pitches are used to introduce the entrepreneur behind the campaign, the development and current state of the project, and the features and characteristics of the offered product or service. As such, video pitches are an important means to convey the campaign's story and thereby are part of the campaign's narrative (Frydrych et al., 2016). Defazio et al. (2020) state that crowdfunding backers source information about a project both from textual descriptions and video language. Disregarding video language in the linguistic analysis could, therefore, lead to measurement errors, as the data basis would differ from the information basis that a potential project backer considers. We take full advantage of the information available in crowdfunding campaigns and use both textual descriptions and video language as narratives for our entire sample. To our knowledge, this is the first study that evaluates the conditions for supporting reward-based crowdfunding campaigns that feature a pro-social or pro-environmental orientation based on the full narratives.

2.2 Framing and Frames in Social Movement Theory

Frames function as cognitive shortcuts that enable individuals to "locate, perceive, identify, and label" occurrences and thus interpret information in any given situation (Goffman, 1974). Framing as a theoretical construct is widely applied in organizational and management theory to explain individual decision-making on a micro level, interactive meaning construction on a meso level, and institutional changes on a macro level (Cornelissen & Werner, 2014). This study draws on the meso level literature stream of social movements in which framing is used to explain how meaning is co-constructed through human interaction (Kaplan, 2008). In detail, social movement literature supports our study in two respects: first, it helps to explain how linguistic framing mobilizes individuals. Similar to social movements, the success of crowdfunding campaigns depends on collective action by a dispersed crowd (Nielsen, 2018). Just as social movement leaders

try to engage a crowd around a cause to mobilize resources, a crowdfunding project creator seeks to find support for his or her crowdfunding campaign (Nielsen & Binder, 2020). Following the call for research by McKenny et al. (2017) to incorporate resource mobilization theory regarding social movements in crowdfunding, and in line with Defazio et al. (2020) and Nielsen and Binder (2020), we apply linguistic framing as outlined by social movement theorists to examine how the selection is enabled, and action is guided in a crowdfunding setting.

2.2.1 Meaning Construction in Social Movements

The framing perspective in social movement theory follows the principle of interactionism that meanings or labels for objects, experiences, or events surrounding us do not exist a priori but arise from interpretive processes based on interaction (Snow, 2004). While social movements in the traditional sense were outlined as carriers of ready-made ideas and beliefs, the framing perspective understands movement actors as signifying agents that produce and maintain meanings for adherents, antagonists, and observers (Snow & Benford, 1988).

The process of meaning construction through human interaction described above is conceptualized as framing. The signifying work of framing is an active (something is being done) and dynamic (evolves through interaction) process that entails contention, as what is being done and how it is evolving is resulting in interpretative frames that are new or challenge existing ones. The outcome of this framing activity is denoted as a collective action frame (Benford & Snow, 2000). The shared fundamental understanding of framing and frames in social movement theory is based on Goffman's definition of frames as "schemata of interpretation" that assign meaning to social constructions, and framing is the active part of extending frames or creating new ones (Goffman, 1974). By that, frames perform two tasks: first, they demarcate what is relevant and what is not, that is, what is

inside the frame and what is out of the frame. Second, frames condense information and label occurrences to help make sense of the situation one is confronted with. This twofold interpretive function to render events is also performed by collective action frames, but in a way that calls for action, e.g., to mobilize support and resources, such as time and money (Snow & Benford, 1988).

Collective action frames are continuously created and elaborated in dynamic framing processes. This ongoing process of sense-making is embedded in the overarching concept of discursive fields in which discussions, decisions, and actions take place (Snow, 2008). Discursive fields evolve when a set of actors with congruent ideologies, that is, with congruent values and beliefs, debate events they consider problematic. The interaction inside discursive fields plays a central role in creating collective action frames and developing identities. In what is called core framing tasks by social movement theorists, like-minded individuals inside the discursive field negotiate a common understanding of problematic situations they try to change. Core framing tasks consist of three components: Diagnostic framing refers to identifying the problem and the attribution of blame. Prognostic framing proposes solutions to the problem at hand and specifies execution strategies. Motivational framing is the mobilizing framing task, which calls for the engagement in collective actions alongside a corresponding "vocabulary of motive." In conclusion, diagnostic and prognostic framing seeks to find agreement, while motivational framing fosters action (Snow & Benford, 1988).

By pointing to the problem and its presumed causes, diagnostic framing additionally serves as a marker to construct identity fields and thus assigns roles to the actors relevant to the issue, that is, whether they are subsumed under the field of movement protagonists (problem solvers), antagonists (movement opponents), or audience (neutral individuals) (Hunt et al., 1994). To attract the audience and garner additional support for the movement

on a discursive and direct level, the protagonists try to align the audience's personal identities with the movement's collective identity (e.g., its goals or tactics) through identity talks. On a strategic level, protagonists try to align or link the movement's frames with ideologically related movements and public opinion clusters to mobilize support on a large scale. How strong the mobilizing potency of a frame is among these groups, if it is noticed and "strikes a responsive chord," depends on the frame's salience and resonance (Snow et al., 1986). Here, salience refers to how noticeable and accessible a frame's vocabulary is to an audience. An increase in salience enhances the chances that the audience perceives and processes the frame and consequently includes it into their judgment and decision-making process (Entman, 1993; Fiske & Taylor, 1991). Resonance is a second variable factor that affects the mobilizing potency of frames. A-frame resonates with an audience when it aligns with their values and beliefs, which leads the audience to feel personally connected to the frame and thus form opinions based on the frame and act in its spirit (Giorgi, 2017).

Framing activities occur in various forms, with linguistic framing being one form to attract considerable attention from social science scholars (e.g., Giorgi & Weber, 2015; Loewenstein et al., 2012). Linguistic framing entails using a selective vocabulary set to create specific meanings that influence the audience's understanding and guide their behavior (Entman, 1993; Goffman, 1974). As described above, in forming collective action frames, vocabularies of motive evolve that equip the frame with convincing linguistic rationales for audiences to participate in the movement and act in its spirit (Benford, 1993). We apply these insights to reward-based crowdfunding, where entrepreneurs seek to present their product or service through a campaign description and a video pitch using a vocabulary that motivates backers to pledge to their campaign (S. Manning & Bejarano, 2017).

On reward-based crowdfunding platforms, backers can choose from many pledging options that all compete for attention (H. Zhang & Chen, 2019). To facilitate the backers' investment decision, entrepreneurs present their campaigns via a textual description and usually a video pitch that offers compelling arguments why their offering has a clear added value over other products or services on the crowdfunding platform (Nielsen & Binder, 2020). Together with personal details about the entrepreneur and the venture, these arguments represent the campaign's message or "entrepreneurial narrative" (Martens et al., 2007), which allows entrepreneurs to communicate a strategic selling proposition (S. Manning & Bejarano, 2017). Backers base their decision on whether to pledge to a campaign or not mainly on the entrepreneurial narrative, with limited options to verify or monitor the given information (Vismara, 2019). Furthermore, entrepreneurs on crowdfunding platforms usually cannot build on the advantages of a brand history that assures the backers of a certain kind of product or service quality, nor can they guarantee their future prospects (Pan et al., 2020). This is relevant since strategic linguistic frames help compete for the audience's attention and appreciation, especially in situations of incomplete information and uncertainty (Giorgi, 2017). Thus, crowdfunding literature suggests that the way an entrepreneurial narrative is framed affects the audience's interpretation of the information (Allison et al., 2015) and their decision to support a campaign (Lagazio & Querci, 2018; S. Manning & Bejarano, 2017). Building on these findings, Nielsen and Binder (2020) employ an experimental setting to show that crowdfunding campaigns using strategic framing outperform those whose message is solely framed descriptively. In summary, we argue that strategic framing directs collective action because it attracts attention to the object being framed among a choice set and guides action when there is limited information.

For example, by framing a product or service in the entrepreneurial narrative as "fair" (e.g., embracing gender equity) or "green" (e.g., using renewable energy sources), entrepreneurs evoke product or service features associated with social consciousness or environmental friendliness. In that way, the product or service is demarcated from other non-socially or non-environmentally oriented offerings on the platform. This demarcation is intended to attract socially or environmentally concerned backers and consequently motivate them to support the campaign (Defazio et al., 2020).

2.2.2 Framing and Sustainable Consumption

Backers in reward-based crowdfunding are coined as a "different kind of investor" because they intend to consume the products or services from the projects they support (Assenova et al., 2016). Since backers behave like typical consumers, they are driven by a broad set of motivations that is distinct from that of traditional investors (Cholakova & Clarysse, 2015; Schwienbacher & Larralde, 2010), also in terms of social or environmental considerations (Lehner, 2013). Since the millennium, the effects of pro-social and pro-environmental framing on consumer response have gained traction with marketing and business ethics scholars. They find that customers react positively to such framing efforts, which is beneficial for organizational performance (Maignan & Ferrell, 2004; Marin & Ruiz, 2007; Olsen et al., 2014; Sen & Bhattacharya, 2001). In particular, since consumers become increasingly involved in sustainable consumption (Harrison et al., 2005), they request socially conscious product options and potentially boycott ("buycott" in the social movement jargon (Bennett, 2012)) firms that promote products or services that are "unfair" (Cotte & Trudel, 2009). As a result, firms that offer socially conscious products can evoke positive consumer responses (White et al., 2012). Environmentally sustainable products, for their part, can change the brand attitude of customers: brands that introduce "green"

products are evaluated more positively by their consumers compared to brands that solely offer conventional product counterparts (Olsen et al., 2014).

The consuming behavior described above intends to change the market or institutional paradigms by incorporating non-financial values, such as fairness, justice, or ecological awareness in purchase decisions and is discussed in research as political consumerism (Micheletti, 2003), ethical consumption (Harrison et al., 2005), or sustainable consumption (Hosta & Zabkar, 2020). While focusing partly on different underlying motivations, according to Long and Murray (2013), these concepts all refer to "consumption practices that consider factors beyond the material use-values of the product" with the intention of changing existing market practices (Micheletti, 2003). For sustainable consumption, this means that consumers buy products with the awareness of the consequences and responsibilities that one's buying behavior has for the future of the society and the environment (Epstein, 2008), and potentially choose one product over another due to these considerations (Harrison et al., 2005). Thus, sustainable consumption can be defined as making socially or environmentally conscious purchase decisions to support changes in market practices that are seen as unjust.

Sustainably consuming shares similarities to participating in a social movement. Both involve active engagement to change events that, through the lens of individual and, respectively, collective identity, are seen as problematic. Yet, sustainable consumption is not a social movement by definition since consuming primarily pursues self-interest. Instead, it is a mix of citizen engagement that combines individual and public interests that have been conceptualized by Micheletti (2003) as individualized collective action: "a group of individual actors making similar decisions based on a perceived shared ideology, while simultaneously meeting their own personal needs" (Long & Murray, 2013).

2.3 Research Hypotheses: Emphasis of Pro-Social and Pro-Environmental Framing on Crowdfunding Performance and the Role of Creativity

A central research subject of framing literature deals with defining an effective communication structure to convey a frame to an audience. Studies that address linguistic framing find that frames are effectively conveyed through cues that refer to central concepts of the frame (Giorgi & Weber, 2015; Olsen et al., 2014). In particular, cues make a frame salient and thus noticeable and accessible to an audience (Entman, 1993). Moreover, the quantity of cues determines how much emphasis is put on a frame (Hertog & McLeod, 2001). The "right" amount of emphasis depends on the situation and context and is difficult to generalize. For example, (Entman, 1993) claims that a single remark in a text may be sufficient to set a frame if the frame resonates with the audience. Similarly, Hertog and McLeod (2001) find that one or two cues can effectively convey a frame even in a large amount of text.

Concerning overemphasizing, scholars find that "too many" cues can decrease a frame's effectiveness. From a marketing standpoint, Olsen et al. (2014) argue that brands using a greater quantity of cues to highlight the environmental value of a product obstruct the efficacy of their green marketing efforts. As for entrepreneurship research, Parhankangas and Ehrlich (2014) present similar results while analyzing investment proposals. The authors find empirical evidence that business angels are less likely to invest in startups that promote themselves as overly innovative and use high levels of positive language.

In reward-based crowdfunding, projects that overuse accountability language disclose too much information and consequently reduce their chances of achieving their funding goal (Kim et al., 2016). Finally, Defazio et al. (2020) show that overemphasizing a sustainable orientation in crowdfunding projects negatively affects the project's success. These findings are due to two main factors. First, when a frame is overemphasized in a market

context, the audience tends to become more skeptical about the offering (Friestad & Wright, 1994). Too much emphasis causes the audience to doubt a frame's credibility, which in turn negatively influences the frame's effectiveness (Kim et al., 2016; Levin et al., 1998). Hence, it can backfire if an entrepreneur uses too many cues to set a frame in a reward-based crowdfunding campaign since potential backers may not believe that the claims are true.

Second, frames highlight certain characteristics of a context and, in turn, cover up other ones (Burke, 1984). As a result, the audience becomes uncertain about an offering when it feels that product or service features could be missing (Meyer, 1981), especially when these features are typically present in comparable offerings (Kivetz & Simonson, 2000). From a consumer standpoint, a product is a complex bundle of attributes and benefits. While core benefits stem from the product's value-giving attributes that ensure its basic functionality, added benefits are based on, for example, sustainable considerations (Smith, 1990). The basic functionalities are the driving force for purchase decisions, and even highly sustainability-conscious consumers are unwilling to trade off social or environmental attributes at the expense of product or service functionality (Auger & Devinney, 2007; Auger et al., 2008; Crane, 2001). In this vein, crowdfunding scholars provide evidence that backers in reward-based crowdfunding are mainly driven by self-interest since the anticipation of a reward in exchange for their contribution appears as a strong motivator when funding campaigns (Bretschneider & Leimeister, 2017; Vasileiadou et al., 2016). Hence, when an entrepreneur in a crowdfunding project strongly emphasizes a pro-social or pro-environmental orientation in the entrepreneurial narrative, potential project backers may be deflected from basic product or service functionalities they expect to be present.

We conceptualize that a pro-social or pro-environmental framing affects the outcome of a crowdfunding project in two different ways via countervailing latent effects. The first latent

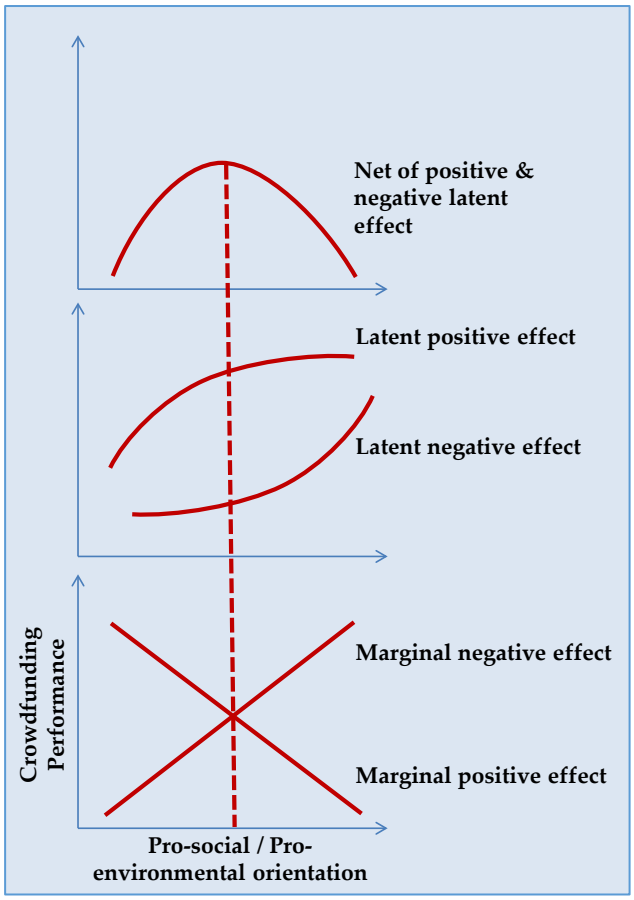
effect is positive and reflects that a pro-social or pro-environmental orientation corresponds to backers' requests for socially conscious or environmentally sustainable products or services. As we discussed above, firms that introduce such offerings are evaluated more positively by consumers and outperform competitors who offer conventional products or services. In contrast, the second latent effect harms the outcome of a crowdfunding project. As laid out above, a strong emphasis on social or environmental framing increases the chance that backers doubt the frame's credibility and that it hides other product or service features that backers deem important.

Both the positive and the negative latent effects grow with the level of social or environmental framing. However, the two latent effects grow at different rates. The positive latent effect takes on a concave shape, and thus its slope decreases with a growing level of social or environmental framing. This is because an upper limit exists on how a crowdfunding campaign can promote a social or environmental orientation. In our study, we derive scores by dividing the amount of social or environmental rhetoric by the word length of the narratives. Accordingly, this upper limit is the point (namely a score of 100) where the project would only consist of social or environmental rhetoric, leaving no room to describe other details of the project, e.g., technical specifications. We thus conceptualize that the marginal positive latent effect will get smaller as the level of social or environmental framing increases. For the negative latent effect, we propose that it takes on a convex shape and that its slope increases with social or environmental framing.

In conclusion, one or two references or cues may be enough to successfully convey a frame to an audience. Hence, when the level of social or environmental framing is relatively low, this may not hide other important information and may not jeopardize the frame's credibility. However, as the level of social or environmental framing grows, escalating negative effects come into play, such as skepticism and the covering of relevant product or

service information. Since the marginal negative latent effect will become stronger as the level of social or environmental framing increases, we conceptualize that after a certain point, skepticism and the concealment of other information start to dominate the concavely shaped benefits of meeting backers' social or environmental product requests (see Figure C-1).

Figure C-1: Rationale for an inverted U-shaped relationship



Thus, we predict an inverted U-shaped effect of the level of pro-social or pro-environmental orientation on crowdfunding performance. Therefore, we hypothesize the following.

Hypothesis 1: Pro-social orientation will have a curvilinear, inverted U-shaped relationship with crowdfunding performance.

Hypothesis 2: Pro-environmental orientation will have a curvilinear, inverted U-shaped relationship with crowdfunding performance.

Prior studies suggest that the relationship between linguistic framing and the outcome of a crowdfunding project depends upon the product or service characteristics under which the framing is initiated and implemented (H. F. Chan et al., 2019). An important product or service characteristic concerning the outcome of crowdfunding projects is creativity (Calic & Mosakowski, 2016; H. F. Chan et al., 2019; Davis et al., 2017). Accordingly, we expect that a creative product or service idea will likely affect the relationship between the framing of an entrepreneurial narrative and the project outcome.

Kickstarter's mission is "to help bring creative projects to life" (Kickstarter, 2020c). In a market context, a product or service is considered creative when it is both novel and useful (Hennessey & Amabile, 2010). Putting a creative product or service into practice requires an extensive set of procedural, technical, and intellectual knowledge (Amabile, 2012; Mumford & Gustafson, 1988). This specialized knowledge combined with lateral thinking enables entrepreneurs to combine information from their prior experiences and their present environment into creative product or service solutions (Simon, 1985; Ucbasaran et al., 2009). Thus, entrepreneurial creativity is being able to "rapidly recognize the association between problems and their purported solutions by identification of non-obvious associations and/or by reshaping or reforming available resources in a non-obvious way" (Ray & Cardozo, 1996). We expect that this ability is beneficial when featuring a sustainable orientation in a market context and facing its accompanying challenges. For instance, entrepreneurs need to address environmental, social, and economic outcomes simultaneously, which involves improving "the general welfare of society" (Schwartz & Carroll, 2008) and pursuing financial performance goals simultaneously (Hahn et al., 2014). This implies taking a wide range of different stakeholders and their often conflicting demands into account (Clarkson, 1995; Maon et al., 2008).

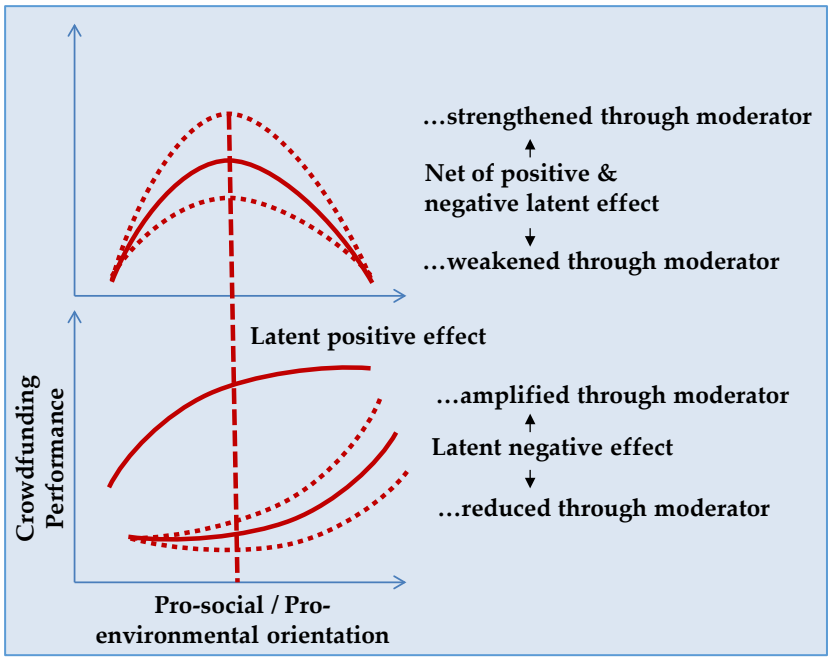
Moreover, a pro-social or pro-environmental orientation implies a long-term orientation of the business (Willard, 2012). Thus, compared to financially driven short-term decision-making of traditional businesses (Held, 2001; Slawinski & Bansal, 2012), entrepreneurs include the needs of future generations in their decision-making and typically feature a more global perspective (Schwartz & Carroll, 2008).

In conclusion, when featuring a pro-social or pro-environmental orientation, entrepreneurs are confronted with situations in which they need to address multiple conflicting outcomes simultaneously and satisfy demands at the firm and societal level with different time horizons and different agendas (Hahn et al., 2014). We argue that creativity helps in handling these tasks as it drives entrepreneurs to, e.g., develop or identify new raw materials, figure out new ways of production, or find new business models to fulfill the expectations above. As a basis for our analysis, we suggest that entrepreneurs are more likely to fulfill the claims about a social or environmental orientation when the project or service idea demonstrates creativity. Accordingly, we speculate that backers assume that the pro-social or pro-environmental claims in a crowdfunding project are more likely to be realized when the project or service idea is creative. This results in less skepticism about the feasibility of the social or environmental claims.

As discussed above, the overall impact of the level of social or environmental framing on project outcome is the net result of the positive and negative latent effects of the framing. How creativity moderates the overall impact of social or environmental framing on project outcome will consequently be determined by how creativity affects the negative effect of social or environmental framing. We argue that creativity will strengthen or weaken the negative effect of social or environmental framing for the following reasons. If the project does not demonstrate a creative product or service idea, backers might doubt that the entrepreneur can manage the complex task of addressing the multiple conflicting outcomes

that emerge with a social or environmental orientation. This might intensify skepticism about the social or environmental claims of the entrepreneur, which will, in turn, strengthen the negative latent effect that backers might doubt the frame's credibility. In contrast, demonstrating a creative product or service idea might lessen backers' skepticism about the social or environmental claims. Since crowdfunding projects are built on projections of a future that only exists if the campaign generates enough funding (Kim et al., 2016), claims about the project need to be plausible (Garud et al., 2014). Drawing from the literature above, this may reduce skepticism about the social or environmental claims, which will, in turn, weaken the negative latent effect that backers may doubt the frame's credibility (see Figure C-2).

Figure C-2: Rationale for a moderated inverted U-shaped relationship



Consequently, we argue that the inverted U-shaped relationship between the level of social or environmental orientation and being successfully funded, receiving higher total funding amounts, and attracting a higher number of project backers may differ when projects feature a creative product or service idea. We, therefore, hypothesize the following.

Hypothesis 3: The inverted U-shaped relationship between a social orientation and crowdfunding performance will be flattened when the project or service idea is not creative and steepened when the project or service idea is creative.

Hypothesis 4: The inverted U-shaped relationship between an environmental orientation and crowdfunding performance will be flattened when the project or service idea is not creative and steepened when the project or service idea is creative.

3 Data and Methods

3.1 Data

We used data from the Kickstarter website that was collected by a web-crawling algorithm. The algorithm retroactively collected all successful and failed projects that went live on Kickstarter in 2018. To answer our research question, we focused on technology projects. Since Kickstarter makes special demands for projects posted in the technology category, such as a manufacturing plan and a delivery date for rewards, technology projects are more likely to become a long-lasting enterprise (Scheaf et al., 2018). The focus on a single category also improves project comparability.

Furthermore, we adhere to limiting the population of projects to those whose funding goal is at least 5000 USD. This funding level threshold addresses the problem that projects on Kickstarter have a wide range of funding goals and that the underlying motivation for a 100 USD project might differ from that of a project whose funding goal is 10,000 USD. We try to eliminate these discrepancies in project concepts by only including relatively large projects into the sample. In addition, focusing on relatively large projects allows us to better compare our findings to ventures funded through traditional financing options (Mollick, 2014).

We first drew a random sample of 1099 US-based technology projects from the Kickstarter website. We adjusted our sample for 44 projects, which falsely indicated a US location, but were actually based in China. Furthermore, we removed six projects for which the campaign data were incomplete, e.g., when the Kickstarter account was deactivated so that the gender of the entrepreneur could not be collected. This resulted in a final dataset of 1049 US-based technology projects.

In addition to the project descriptions, we collected the project video pitches to ensure that we capture the complete entrepreneurial narrative of the projects. Since video pitches are an important source of project information for backers, we extracted all linguistic information from the videos using otter.ai's automated voice recognition algorithm. To ensure the accuracy of the automated transcription, 60 video pitches were transcribed manually and compared to their AI-generated counterparts, resulting in a matching rate of over 90%. In other words, more than 90% of linguistic information was captured correctly by otter.ai. Afterward, all automated transcriptions were manually checked for inconsistencies, such as double entries or the incorrect capturing of special characters or proper names. We then merged the transcribed pitches with the projects' textual descriptions and general characteristics, such as project duration, total amount of capital raised, and number of project backers.

Collecting both the textual description and transcribed pitches addresses common methodological issues related to content analysis. Typically, crowdfunding studies that employ content analysis only use the textual description to measure their linguistic constructs, irrespective of the existence of a project video pitch. This approach could potentially entail measurement errors because the data collected are only a fraction of the information available to backers. In our sample, entrepreneurs used 388 words in their video pitches on average. Compared, the average textual description consists of 842 words.

Thus, a large share of linguistic information goes unnoticed when disregarding video pitches. In total, we analyzed approximately 1.14 million words.

3.2 Dependent Variables

Our dependent variable is crowdfunding performance, which comprises different aspects of a successful crowdfunding project. Kickstarter works on an all-or-nothing basis: If a project does not reach its goal by the deadline, no funds will be collected. However, if a project matches or exceeds its goal, it receives all of the money pledged (Kickstarter, 2020a). This results in different approaches to operationalizing crowdfunding success using an indicator if a project met its goal (Parhankangas & Renko, 2017), complemented by the total amount of capital raised (Calic & Mosakowski, 2016) and the number of individual investors (Anglin, Wolfe, et al., 2018). We follow the approach of Anglin, Wolfe, et al. (2018) and operationalize the success of a crowdfunding project as crowdfunding performance and include the three aforementioned success aspects in our study. For this purpose, our dichotomous variable successfully funded indicates if a campaign at least met its preset goal. Successfully funded was coded as "1" for campaigns that met their goal during the duration of the campaign and as "0" otherwise.

Second, the amount pledged accounts for the total capital raised during the campaign, irrespective of whether or not the preset funding goal was met. This continuous measure is important for our study because it differentiates between campaigns that did not generate any funding and campaigns that only just missed their preset goal by a narrow margin. At the other end of the spectrum, this variable considers if a campaign barely met the funding goal or "over performed" and raised far more than the funding goal. Since the amount pledged has a high degree of skewness, we used the natural log of the variable to correct for the influence of extreme outliers (W. G. Manning et al., 2005).

Lastly, the number of backers is a continuous variable for the number of individual investors supporting a project. Studies show that as opposed to a few large contributions, a higher number of backers with smaller contributions is crucial for crowdfunding success (Davidson & Poor, 2016; Skirnevskiy et al., 2017). Since this is applicable across different crowdfunding platforms, the variable number of backers helps to generalize our findings for reward-based crowdfunding in general. Again, we transformed the variable using the natural log to correct for extreme outliers.

To estimate our models for the dichotomous variable successfully funded, we use logistic regression and report the coefficients as odds. For log of amount pledged and log of number of backers, we employ linear regression.

3.3 Independent Variables and Model Estimation Procedures

In this study, the independent variables pro-social orientation and pro-environmental orientation represent constructs that demonstrate the awareness of social and environmental values, such as social and ecological fairness and justice (Brickson, 2007). Our selection of the social and environmental categories aligns with prior literature about sustainability and meets the conditions to account for sustainable development (Hall et al., 2010). In entrepreneurship research, according to Shepherd and Patzelt (2011), the goal of sustainable development is to sustain communities (social dimension) as well as life support systems and nature (environmental dimension). Our study captures the social and environmental orientation as linguistic constructs using a content analysis algorithm that assesses the pro-social or pro-environmental framing of a project based on using cues expressing a pro-social or pro-environmental orientation. We employed the computer-aided text analysis (CATA) tool CAT Scanner (McKenny et al., 2012). CAT Scanner measures the salience of a construct based on the frequency of words, word stems, and phrases (Short et al., 2018).

Using CATA has methodological benefits when analyzing large amounts of text because compared to manual coding, it minimizes the risk of coder fatigue and disagreement between coders (Short et al., 2018). To measure our independent variables, we used content analytic dictionaries developed by Pencle and Mălăescu (2016). In their study, the authors focus on developing dictionaries that capture the multidimensional construct of corporate social responsibility and validate these dictionaries using sustainability reports from initial public offering prospectuses. The dictionaries employee, human rights, social and community, and environment were generated deductively by synthesizing the frameworks of the major corporate social responsibility guidelines and inductively by assessing a subsample of sustainability reports.

In detail, the dictionaries adopt the following definitions: Employee relates to the awareness and care of the organizations' internal stakeholders. Human rights consider the individual and collective rights of all stakeholders (e.g., minorities) and promote inclusiveness. Social and community focus on the needs of the local community, native communities, and developing society. Finally, environment relates to protecting natural resources and the responsible use of materials. We consider the dictionaries, which were initially designed for corporate social responsibility measures, to be suitable for our study. Pencle and Mălăescu (2016) state that corporate social responsibility and sustainability are two deeply interwoven constructs, and they use the two terms interchangeably when referring to their sample. Furthermore, the authors made the dictionaries freely available and strongly encouraged researchers to refine or consolidate the dictionaries according to the needs of the study.

We follow this recommendation and subsume employee, human rights, and social and community under the dimension social (the other being environment), and we detected and deleted all double entries among the dictionaries to prevent distortion from overlap. This

refinement is to ensure the reliability of our measure in the new context (McKenny et al., 2018). As stated above, selecting these two categories is informed by the prevalent understanding that sustainability consists of a social and environmental dimension. However, to ensure the fit of the intended measures by our independent variables with the consolidated dictionaries, we utilized the detailed definitions of social and environmental sustainability from the 'Wellbeing of Nations: A Country-by-Country Index of Quality of Life and the Environment'. Here, Prescott-Allen (2001) further specifies sustainable development beyond the term social and environmental and provides specific elements that, respectively, constitute the two dimensions.

Table C-1 lists the elements of the social dimension in detail and gives examples of words or phrases from the dictionaries that correspond to these elements. The last column gives the content analytic dictionary the examples originate. Following this approach, Table C-2 features the elements that aggregate to the environmental dimension, again with examples stemming from the dictionaries.

Table C-1: Elements related to the social dimension and dictionary examples

Social Elements	Dictionary Examples	CATA Dictionary
Health and population	"health benefits"	Employee
	"employee wellbeing"	Employee
	"benefit the masses."	Social and community
Wealth (e.g., household wealth)	"employee welfare"	Employee
	"affordable housing"	Social and community
Knowledge and culture	"human development"	Human rights
	"cultural preservation"	Social and community
	"educational programs"	Employee
Community (e.g., freedom)	"community projects"	Social and community
	"civic engagement"	Social and community
	"inclusiveness"	Human rights
Equity (e.g., gender equity)	"gender diversity"	Human rights
	"employee equity"	Employee

This table presents social elements that correspond to the dictionaries used in this study

Table C-2: Elements related to the environmental dimension and dictionary examples

Environment Elements	Dictionary Examples	CATA Dictionary
Land	"land conservation"	Environment
	"rainforest"	Environment
Water	"groundwater"	Environment
	"water purification"	Environment
Air	"ozone depletion"	Environment
	"emissions"	Environment
Species and genes (e.g., wild/domesticated diversity)	"caged animal"	Environment
	"genetically modified"	Environment
Resource use	"renewable energies"	Environment
	"energy efficiency"	Environment

This table presents environmental elements that correspond to the dictionary used in this study

We consider that longer campaign narratives potentially increase the probability that social or environmental rhetoric is captured, which is why our independent variable may be endogenous. We follow prior content analysis studies and remove the influence of narrative length by dividing the amount of social or environmental rhetoric by the word length of the narratives (Anglin, Wolfe, et al., 2018). This score is multiplied by 100, so a score of, e.g., 10 reflects that 10% of the language used relates to the social or environmental dimension.

3.4 Moderating Variable

Creativity accounts for developing products or services that are useful and novel (Hennessey & Amabile, 2010). However, understanding what is novel and useful varies significantly within and across cultures, leading to construct validity problems (Loewenstein & Mueller, 2016). We aim to create an indication that takes different cultures and underlying understandings of creativity into account and, consequently, matches the global nature of the crowd that usually is geographically and socially distant from the project creators (Agrawal et al., 2015; Calic & Mosakowski, 2016). The project's creativity was assessed by two coders that attended the university's master's program and participated in entrepreneurship courses. We followed the approach of Loewenstein and Mueller (2016) and used laypeople, since investment-wise reward-based crowdfunding backers are mainly

lay people (Agrawal et al., 2014), but instructed the coders on the same implicit theory of creativity. We provided cues for a novel (e.g., paradigm shift, breakthrough, surprise) and useful (e.g., functional, intuitive) that are tried and tested to hold true for different cultures and understandings of creativity (Loewenstein & Mueller, 2016). The coders assessed the project descriptions and visuals, such as videos and pictures, unaware if the campaign was successful or how much funding it received. We calculated Cronbach's alpha (Krippendorff, 2018) to measure interrater reliability, which at 0.84 is above the commonly stated critical threshold of 0.7 and leads us to assume that the coders had a common understanding of creativity (Davidsson et al., 2006). The campaigns the coders disagreed on were put to discussion and re-evaluated until they agreed on a final judgment.

3.5 Control Variables

With a longer duration decreasing the chances of success, we control the number of days a project is live for funding on the Kickstarter website (Mollick, 2014). Furthermore, we included a dichotomous variable whether the project featured a prototype gallery or not. A prototype gallery is a series of photos that technology projects can integrate above their project description. This allows the current state of a project to be presented and signals transparency (Calic & Mosakowski, 2016). We control for differences in project goals since prior empirical work has shown the influence of funding goals on crowdfunding success (Hakenes & Schlegel, 2014). Cordova et al. (2015) find that a higher funding goal level of a given project decreases its probability of being funded successfully. Moreover, backers draw important information from funding goal levels and use them as a decision-making tool (Hakenes & Schlegel, 2014). As backer behavior is affected by the gender of the project initiator (Marom et al., 2016), we indicate if the project initiator is male or female. For instance, Greenberg and Mollick (2015) examined if gender-based differences in financing are present, as women are disadvantaged when trying to access external funding sources.

We account for the role of external social capital in crowdfunding and include whether the Kickstarter account of the project initiator is connected to Facebook (Mollick, 2014). Being connected to social networks has been shown to be an effective proxy for social capital in the form of third-party ties in online communities. Extant studies find evidence that linking the campaign to social networks increases funding success probability (Giudici et al., 2013; H. Zheng et al., 2014).

4 Empirical Results

We tested Hypotheses 1–4 by constructing a series of logistic and linear regression models with crowdfunding success as a dependent variable. To account for multicollinearity, we assessed the values of our correlation coefficients and the variance inflation factors (Kennedy, 2008). Table C-3 provides the descriptive statistics for our sample, and Table C-4 presents the variance inflation factors (VIF) and Pearson's correlation coefficients for the independent variables. With all pairwise correlation coefficients below 0.2 and the variance inflation factors ranging from 1.01 to 1.04, we conclude that multicollinearity does not affect our regression models (O'brien, 2007).

Table C-3: Descriptive statistics

Variable	N	Mean	SD	Min	Max
Dependent variable:					
Successfully funded	1049	0.255	0.436	0	1
Log of amount pledged	1049	6.39	3.743	0	14.96
Log of number of backers	1049	2.802	2.204	0	9.156
Independent variable:					
SO Orientation social	1049	1.488	0.794	0	5.935
SO environment	1049	0.823	0.864	0	9.737
Moderator variable:					
Creativity	1049	0.186	0.389	0	1
Control variables:					
Duration	1049	37.182	12.417	7	60.042
Prototype gallery	1049	0.321	0.467	0	1
Log of goal	1049	10.088	1.111	8.517	15.425
Gender (1 = male)	1049	0.827	0.378	0	1
Facebook	1049	0.315	0.465	0	1

This table presents the descriptive statistics of the variables used. Note: SO = sustainability orientation.

Table C-4: Variance inflation factors (VIF) and pairwise correlation coefficients between the independent variables

Variables	VIF	1	2	3	4	5	6	7	8
1 SO social	1.04	1.000							
2 SO environment	1.04	−0.029	1.000						
3 Creativity	1.02	−0.037	0.064	1.000					
4 Duration	1.02	0.027	−0.033	−0.035	1.000				
5 Prototype gallery	1.02	−0.001	0.010	−0.072	−0.062	1.000			
6 Log of goal	1.01	−0.016	−0.016	0.017	0.111	0.022	1.000		
7 Gender	1.01	−0.076	0.015	−0.015	−0.015	0.039	0.006	1.000	
8 Facebook	1.01	−0.025	−0.031	−0.076	−0.035	0.176	−0.021	0.021	1.000

This table presents the variance inflation factors (VIF) and the pairwise Pearson's correlation coefficients of the independent variables used in the regression models. Note: SO = sustainability orientation.

Hypothesis 1 proposed that a social orientation will exhibit an inverted U-shaped relationship with crowdfunding performance. To test hypothesis 1, we entered a linear term and a quadratic term of the independent variable social to the logistic and linear regression equations. As we proposed in our hypothesis, we could observe positive coefficients for the linear terms and negative coefficients for the squared terms, all statistically significant at the 1% level. This suggests that a pro-social orientation in crowdfunding projects increases the probability of being funded successfully, receiving more pledges, and mobilizing a higher number of backers up to a certain point. After this optimal point, any further increase in pro-social orientation diminishes entrepreneurs' likelihood of crowdfunding performance. We expected this result since backers respond positively to social-oriented products or services and proactively support projects that feature a pro-social orientation. However, promoting very high levels of social orientation creates skepticism among backers, who start to doubt the credibility of the social claims and feel that important product or service features are missing.

Figure C-3 a–c provides plots of the relationships for successful funding, amount pledged, and number of backers and are consistent with the proposed inverted U-shaped relationship. Hence, hypothesis 1 is supported. To interpret our results, we used the marginal effects to calculate the turning points. This allows us to define the level of social orientation that is

most beneficial and also aims to provide a threshold beyond which pro-social orientation reduces the respective dependent variable. The turning point for the dependent variable successful funding is at a score of 1.5, for the amount pledged at 1.1, and for the number of backers at 1.4. For a crowdfunding campaign, this means that promoting a pro-social orientation is only advantageous to an optimal score of 1.5, that is, 1.5 words associated with promoting a pro-social orientation per 100 words. From this point, promoting a pro-social orientation any further diminishes the probability of successful funding. Respectively, this applies to receiving pledges at a score of 1.1 and mobilizing backers at a score of 1.4.

Analog to the social dimension, hypothesis 2 proposes that a pro-environmental orientation will exhibit an inverted U-shaped relation with crowdfunding performance. Our results show positive coefficients for the linear term and negative coefficients for the squared terms, all significant at the 1% level. The plots, as illustrated in Figure C-3 d–f, indicates that the results align with the proposed U-shaped relation. Thus, hypothesis 2 is supported. The turning points for the dependent variables are at the following scores: successful funding: 1.74; amount pledged: 3.1; the number of backers: 3.0. Concerning the dependent variable of successful funding, the results indicate that promoting an environmental orientation evokes a positive relation up to a score of 1.74. In line with this argument, the optimal point for receiving pledges is at a score of 3.1 and for mobilizing backers at a score of 3.0. We expected this result for environmentally sustainable products or services, which backers view as more desirable compared to “non-green” options. Yet, overemphasizing a pro-environmental orientation is problematic because backers will not believe the claims and fear that the product or service does not fulfill standard functionalities.

Compared to the social orientation, where the optimal emphasis ranges between scores of 1.1 and 1.4, backers attach more relevance to the emphasis of an environmental orientation,

which is reflected in scores ranging between 1.74 and 3.1. However, our sample shows that entrepreneurs put considerably less emphasis on environmental orientation, on average approximately 0.8 words per 100 words. In contrast, entrepreneurs use on average 1.48 words associated with social orientation per 100 words, which is roughly what we identified as the optimal amount of emphasis. Tables C-5, C-6, and C-7 provide the results of our hypothesis tests for our dependent variables successful funding, log of amount pledged, and log of number of backers, respectively.

Table C-5: Regression analysis for "Successfully Funded"

Dependent Variable Successfully Funded	Model 1	Model 2	Model 3	Model 4
Independent variables				
SO social	1.920108 *** (0.5152531)			
SO social squared	−0.6327851 *** (0.1572913)			
SO environment		1.06648 *** (0.3054654)		
SO environment squared		−0.3073523 *** (0.0984528)		
Moderator variable				
Creativity	2.681317 *** (0.2018984)	2.714216 *** (0.2006221)		
Moderator terms				
SO social × creativity			2.945252 ** (1.350475)	
SO social squared × creativity			−0.8581894 ** (0.4162497)	
SO environment × creativity				−0.1348543 (0.7506852)
SO environment squared × creativity				−0.0924645 (0.2187173)
Control variables				
Duration	−0.0215298 *** (0.0075455)	−0.0200979 *** (0.007478)	−0.0227254 *** (0.0076291)	−0.0203139 *** (0.0074956)
Prototype gallery	−0.4728156 ** (0.1967667)	−0.4508344 ** (0.1956723)	−0.4779293 ** (0.1979541)	−0.4491765 ** (0.1962095)
Log of goal	−0.4165938 *** (0.0881734)	−0.3905198 *** (0.0873755)	−0.4318566 ** (0.0890654)	−0.3935945 *** (0.0878419)
Gender	−0.4810685 ** (0.2184813)	−0.4037996 * (0.2160087)	−0.4640738 ** (0.2206158)	−0.4089235 * (0.216492)
Facebook	−0.8657768 *** (0.2075535)	−0.8496694 *** (0.2075708)	−0.8793573 *** (0.2091075)	−0.8501866 *** (0.208364)
Constant	2.800309 *** (0.9624383)	3.056915 *** (0.9161699)	3.366041 *** (0.9890082)	3.06701 *** (0.9256092)

This table presents the results of the logit regression models to examine the effects of pro-social and pro-environmental orientation used in crowdfunding narratives on being successfully funded. Standard errors are in parentheses. The symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. Note: SO = sustainability orientation.

Table C-6: Regression analysis for "Amount Pledged"

Dependent Variable Log of Amount Pledged	Model 1	Model 2	Model 3	Model 4
Independent variables				
SO social	0.7457309 **			
	(0.3679957)			
SO social squared	−0.3049152 ***			
	(0.0944174)			
SO environment		1.063266 ***		
		(0.2247755)		
SO environment squared		−0.1727496 ***		
		(0.0431899)		
Moderator variable				
Creativity	4.255518 ***	4.225161 ***		
	(0.260996)	(0.260864)		
Moderator terms				
SO social × creativity			2.735261 **	
			(1.307635)	
SO social squared × creativity			−0.6964062 **	
			(0.337918)	
SO environment × creativity				−0.0678463
				(0.8379682)
SO environment squared × creativity				−0.1613315
				(0.2049396)
Control variables				
Duration	−0.0274385 ***	−0.0267372 ***	−0.0283448 ***	−0.0269792 ***
	0.00817	(0.0081612)	(0.0081794)	(0.0081526)
Prototype gallery	0.2399189 ***	0.1981808	0.2400757	0.2031352
	(0.2194481)	(0.2192495)	(0.2192489)	(0.2189864)
Log of goal	−0.0099292	−0.0046803	−0.013252	−0.0021553
	(0.0911028)	(0.0909419)	(0.0910641)	(0.0908525)
Gender	−0.6468451 **	−0.5791563 **	−0.6180949 **	−0.5712505 **
	(0.266842)	(0.26579)	(0.2669714)	(0.2655197)
Facebook	−0.8315246 ***	−0.760119 ***	−0.8060118 ***	−0.7596774 ***
	(0.2203278)	(0.2202037)	(0.2204484)	(0.219991)
Constant	7.196154 ***	6.671469 ***	7.408725 ***	6.565392 ***
	(1.028003)	(0.9817988)	(1.035376)	(0.9819324)

This table presents the results of the linear regression models to examine the effects of pro-social and pro-environmental orientation used in crowdfunding narratives on the amount pledged. Standard errors are in parentheses. The symbols **, and *** denote statistical significance at the 5%, and 1% levels, respectively. Note: SO = sustainability orientation.

Table C-7: Regression analysis for "Number of Backers"

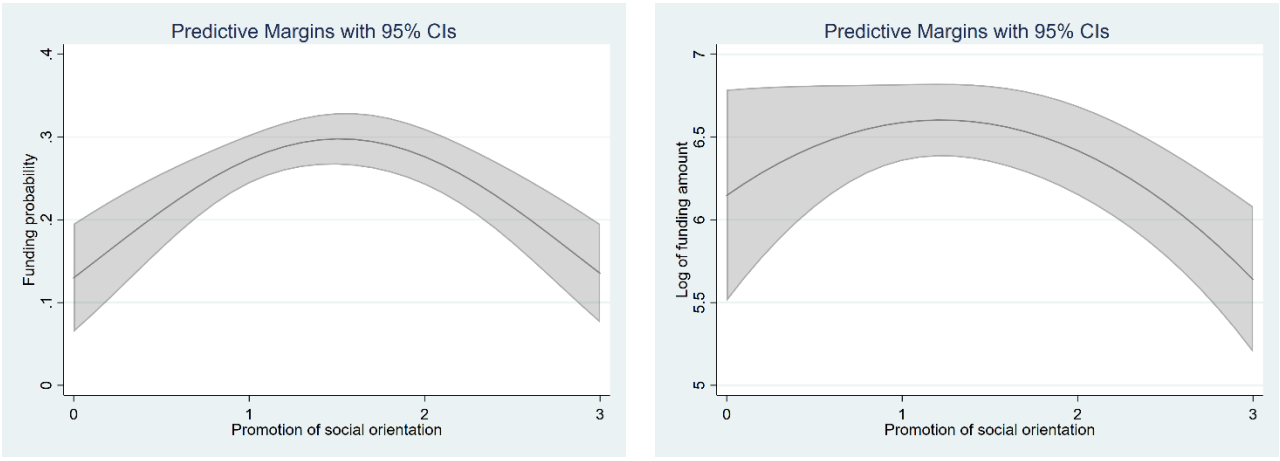
Dependent Variable Log of Number of Backers	Model 1	Model 2	Model 3	Model 4
Independent variables				
SO social	0.6048428 ***			
	(0.212296)			
SO social squared	−0.2137361 ***			
	(0.0544681)			
SO environment		0.4935246 ***		
		(0.1303064)		
SO environment squared		−0.0825476 ***		
		(0.0250379)		
Moderator variable				
Creativity	2.588772 ***	2.594346 ***		
	(0.150565)	(0.1512275)		
Moderator terms				
SO social × creativity			2.012044 ***	
			(0.753347)	
SO social squared × creativity			−0.4753748 **	
			(0.1946794)	
SO environment × creativity				−0.3457735
				(0.4847662)
SO environment squared × creativity				−0.06032
				(0.1185578)
Control variables				
Duration	−0.0155218 ***	−0.0152653 ***	−0.0162861 ***	−0.0154043 ***
	(0.0047137)	(0.0047312)	(0.0047123)	(0.0047163)
Prototype gallery	−0.1036755	−0.1225682	−0.1018288	−0.1194491
	(0.1265966)	(0.1271028)	(0.1263124)	(0.126684)
Log of goal	−0.046894	−0.0452441	−0.0503654	−0.0439533
	(0.052556)	(0.0527206)	(0.0524633)	(0.0525584)
Gender	−0.4658385 ***	−0.4379344 ***	−0.4428025 ***	−0.4335456 ***
	(0.1539374)	(.1540831)	(0.153806)	(0.1536037)
Facebook	−0.6010039 ***	−0.5679778 ***	−0.5842465 ***	−0.5656264 ***
	(0.127104)	(0.127656)	(0.1270035)	(0.1272652)
Constant	3.686854 ***	3.63598 ***	3.86932 ***	3.545521 ***
	(0.5930407)	(0.5691662)	(0.596495)	(0.5680498)

This table presents the results of the linear regression models to examine the effects of pro-social and pro-environmental orientation used in crowdfunding narratives on the number of backers. Standard errors are in parentheses. The symbols **, and *** denote statistical significance at the 5%, and 1% levels, respectively. Note: SO = sustainability orientation.

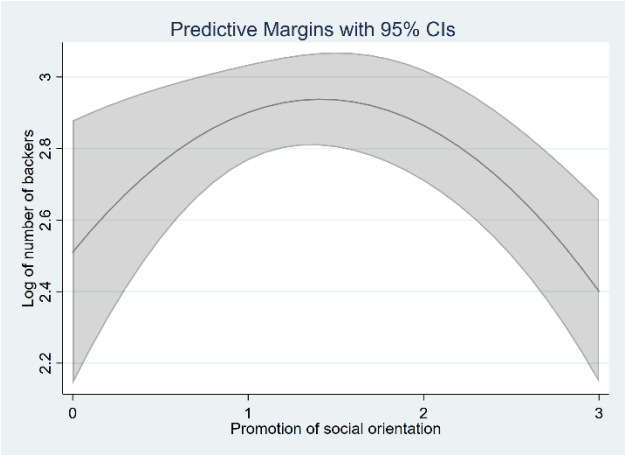
Hypothesis 3 proposed that the inverted U-shaped relationship between a pro-social orientation and crowdfunding performance will be flattened when the project or service idea is not creative and steepened when the project or service idea is creative. We can support hypothesis 3 as the interaction of social orientation and creativity has positive coefficients for the linear term and negative coefficients for the squared term, all significant at the 5% level. Moreover, Figure C-3 g–i is consistent with the idea that the inverted U-shaped relationship between the level of pro-social orientation and crowdfunding performance differs for projects demonstrating a creative product or service idea. Our

results indicate that skepticism about the credibility of the social claims is indeed intensified if the project does not demonstrate a creative product or service idea since backers doubt that the entrepreneur can manage the complex tasks accompanied by a pro-social orientation. This results in a weakening of the inverted U-shaped relationship, as shown in Figure C-3 g–i. However, if the project or service idea is creative, backers' skepticism about the social claims is reduced as they believe that the entrepreneur is capable of simultaneously addressing multiple conflicting outcomes that emerge with a pro-social orientation. The inverted U-shaped relationship is thus steepened, which is illustrated in Figure C-3 g–i.

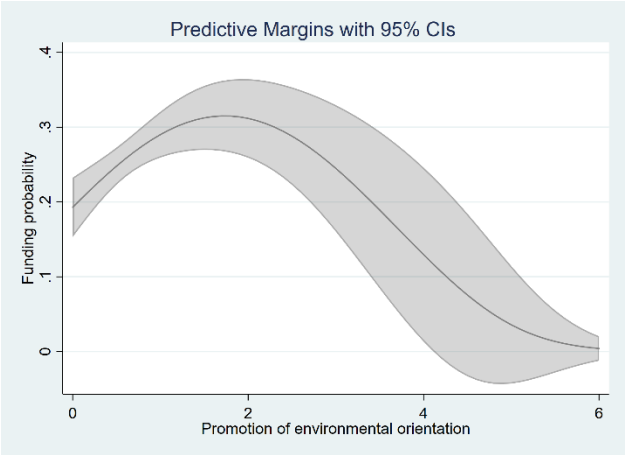
Figure C-3: Plots of significant sustainability variables



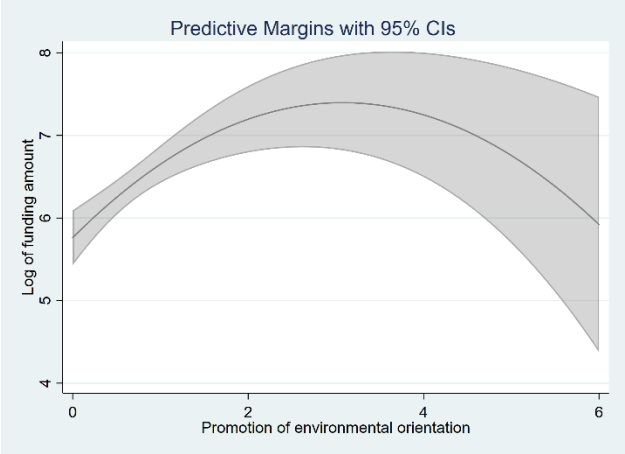
(**a**) (**b**)


Predictive Margins with 95% CIs
Log of number of backers
2.2
2.4
2.6
2.8
3
0
1
2
3
Promotion of social orientation

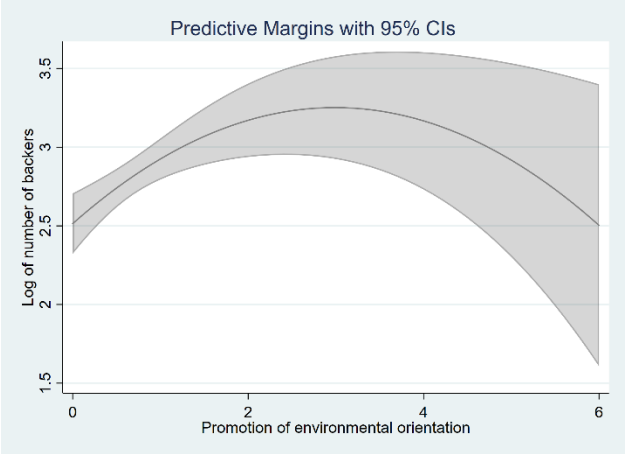
(c)


Predictive Margins with 95% CIs
Funding probability
0
.1
.2
.3
.4
0
2
4
6
Promotion of environmental orientation

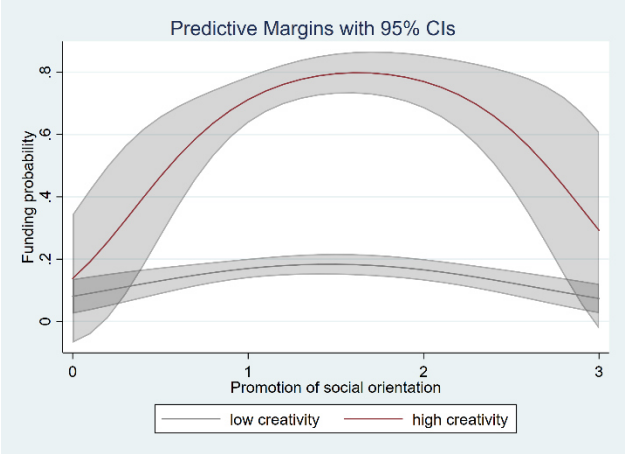
(d)


Predictive Margins with 95% CIs
Log of funding amount
4
5
6
7
8
0
2
4
6
Promotion of environmental orientation

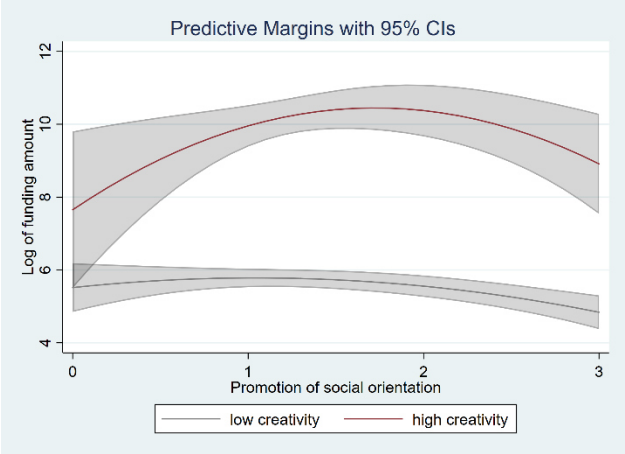
(e)


Predictive Margins with 95% CIs
Log of number of backers
1.5
2
2.5
3
3.5
0
2
4
6
Promotion of environmental orientation

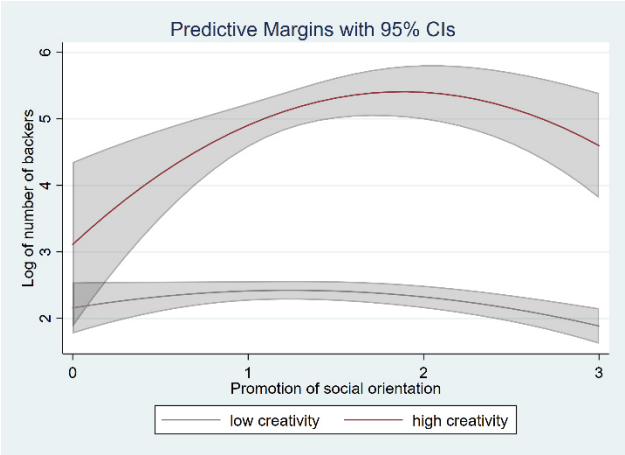
(f)


Predictive Margins with 95% CIs
Funding probability
0
.2
.4
.6
.8
0
1
2
3
Promotion of social orientation
low creativity
high creativity

(g)


Predictive Margins with 95% CIs
Log of funding amount
4
6
8
10
12
0
1
2
3
Promotion of social orientation
low creativity
high creativity

(h)



(i)

This figure presents plots for (**a**) Effect of a pro-social orientation on funding probability; (**b**) Effect of a pro-social orientation on the amount funded; (**c**) Effect of a pro-social orientation on the number of backers; (**d**) Effect of a pro-environmental orientation on funding probability; (**e**) Effect of a pro-environmental orientation on the amount funded; (**f**) Effect of a pro-environmental orientation on the number of backers; (**g**) Moderated effect of pro-social orientation and funding probability: the difference between low and high creativity projects; (**h**) Moderated effect of pro-social orientation and funding amount: the difference between low and high creativity projects; (**i**) Moderated effect of pro-social orientation and number of backers: the difference between low and high creativity projects.

We find no statistical significance to support hypothesis 4, which proposed that the inverted U-shaped relationship between an environmental orientation and crowdfunding performance will be flattened when the project or service idea is not creative and steepened when the project or service idea is creative.

5 Discussion

In recent years, online-based crowdfunding has emerged as a valuable alternative funding source for projects and new ventures (Belleflamme et al., 2014). Entrepreneurs present projects on crowdfunding platforms where potential project backers can provide funding. With our study, we enhance the understanding of whether a pro-social or pro-environmental orientation affects success in the context of reward-based crowdfunding. We hypothesized and empirically found that the level of pro-social or pro-environmental orientation has an inverted U-shaped effect on crowdfunding performance. This finding aligns with our theoretical conceptualization that the overall impact of a pro-social or pro-environmental

orientation is the net outcome of the respective latent positive and latent negative effects of these orientations. The results suggest that entrepreneurs need to delicately balance a pro-social or pro-environmental orientation and find the "right" level of emphasis to create a competitive advantage over comparable crowdfunding projects that feature conventional products or services. Moreover, we demonstrate that the inverted U-shaped relationship between the level of a pro-social orientation and crowdfunding performance differs between projects that do not demonstrate a creative product or service idea and those that do. As we conceptualized, backers seem to feel less skeptical of pro-social claims if the product or service idea is creative. For the same level of pro-social orientation, this means a higher funding probability, more pledges and more backers compared to "non-creative" projects.

Our results challenge prior observations by Cholakova and Clarysse (2015), who surveyed participants in an experimental setting on their pledging and funding motivation and captured their altruistic behavior. The authors find no evidence that the decision of backers to pledge is pro-socially motivated. However, measuring different levels of pro-social orientation unravels that promoting such an orientation can indeed be beneficial up to a certain point. Furthermore, Hörisch (2015) suggests that indicating a pro-environmental orientation can be detrimental to the success of reward-based crowdfunding projects. Since we provide a more fine-grained view by capturing different levels of pro-environmental orientation, our results indicate that a moderate amount increases the probability of crowdfunding performance.

We must acknowledge the limitations of our methodological approach. We capture the social and environmental orientation as linguistic constructs using content analytic dictionaries designed to measure the multidimensional construct of corporate social responsibility. Sustainability and corporate social responsibility are two deeply interwoven

constructs, and we refined and consolidated the dictionaries according to Pencle and Mălăescu (2016) to ensure that they fit our study. Yet, the dictionaries lack external validation, which is why we cannot guarantee the reliability of our measure in the new context (McKenny et al., 2018).

Another limitation concerns the indication of creativity. We used laypeople as coders that were instructed on the same implicit theory of creativity and decided whether a project is creative or not. Although we believe that our approach matches the multifaceted and international nature of participants in crowdfunding, we are aware of the fact that creativity comes in more forms than zero and one, which we did not account for in our study.

Lastly, we aimed to use the textual information available and analyzed the crowdfunding campaign descriptions and the transcribed video pitches. However, there is text that we did not capture with the web-crawling algorithm, especially text that is embedded in graphics and text from the comment and update section of Kickstarter. Thus, our findings are limited by potential measurement errors because we did not capture the entire information basis.

6 Conclusions

We employ linguistic framing as outlined by social movement theorists to examine how the selection is enabled and action is guided in reward-based crowdfunding. In detail, we shed light on how promoting a sustainability orientation affects crowdfunding performance. These results suggest that the level of pro-social or pro-environmental orientation has an inverted U-shaped effect on crowdfunding performance.

In this context, we contribute to the existing literature on sustainability in reward-based crowdfunding in three main ways. First, we evaluate the effect of pro-social and pro-environmental orientation on crowdfunding performance separately. While previous researchers blend the two dimensions to account for sustainability (Allison et al., 2015;

Defazio et al., 2020; Moss et al., 2018), our results demonstrate that backers differentiate between a pro-social and a pro-environmental orientation. These findings align with Catlin et al. (2017), who show that consumers perceive the social and environmental dimensions of sustainability as distinct. Thus, our study helps to better understand the pledging behavior of backers and contributes to the literature concerned with factors that determine crowdfunding success.

Second, we improve the methodological approach to measure pro-social or pro-environmental orientation in crowdfunding narratives. For instance, Calic and Mosakowski (2016) indicate a social or an environmental orientation through linguistic cues. Yet, they only use these cues as an indicator to label campaigns to the social entrepreneurship category and consequently measure a pro-social or pro-environmental orientation through a binary variable. Defazio et al. (2020) address this shortcoming and measure the frequency of the cues to observe the level of a pro-sustainability orientation. However, they do not integrate video language from the entrepreneur's pitch in the linguistic analysis for their entire sample. Accordingly, the data basis differs from the information basis a potential project backer considers, leading to measurement errors as the actual amount of emphasis is not captured. Thus, we collect both the textual description and transcribed pitches to address common methodological issues related to content analysis following the advice of McKenny et al. (2018).

Third, we support the findings of previous studies about the effects of entrepreneurs' language on resource mobilization. In conformity with Parhankangas and Ehrlich (2014) and Defazio et al. (2020), our results confirm that the emphasis on language related to sustainability must be delicately balanced when entrepreneurs try to secure funding. In this regard, we add to the discussion that backers approve more emphasis on the pro-environmental orientation than on the pro-social orientation and that the appreciation of a

pro-social orientation depends upon the creativity of the product or service idea. Accordingly, we advance the understanding of how the relationship between linguistic framing and the outcome of a crowdfunding project depends upon the product or service characteristics under which the framing is initiated and implemented.

Our study opens up opportunities for future research. We evaluated the influence of a pro-social or pro-environmental orientation on crowdfunding performance for crowdfunding projects that went live on Kickstarter in 2018, which is a relatively short period. We would be interested in longitudinal studies that demonstrate how the perception of sustainability changes over time. This would provide insights into how, e.g., a rising awareness of social problems in the general public is reflected in the level of pro-social emphasis in crowdfunding projects and if backers' response changes according to that. Longitudinal studies would thus broaden our understanding of consumers as a "different kind of investor" (Assenova et al., 2016). In this vein, an interesting avenue for future research would be comparing professional early-stage investors, such as business angels, with crowdfunding backers regarding their sensitivity towards sustainability. Future research is also challenged with replicating our findings in equity-based crowdfunding. We would like to see how a pro-social or pro-environmental orientation affects performance in a setting where backers are more driven by financial motivations and invest money for the long term (Collins & Pierrakis, 2012). In this context, it would be interesting to highlight how creativity affects this relationship. Lastly, our transcription approach "boils down" the video pitches to just language. Since the pitch setting typically appears to be the entrepreneur presenting the product or service in front of a camera, valuable body language and paralinguistic cues, such as mimics, tones, or gestures, are lost. We consider this information valuable as it could either accentuate or trivialize a pro-social or pro-environmental orientation.

Future studies could include body language and paralinguistic cues into their sample and use AI-generated coding to empirically assess their influence on crowdfunding performance. Our study also has practical implications. Entrepreneurs may use our findings to better craft their campaign narratives. Framing a crowdfunding project as pro-social or pro-environmental can be beneficial, especially for crowdfunding projects that promote a pro-social orientation and feature a creative product or service idea. Yet, entrepreneurs should be aware that overemphasizing a pro-social or pro-environmental orientation may backfire and reduce the probability of crowdfunding performance. In this vein, crowdfunding platforms could use the results of this study to guide entrepreneurs when advising them on how to create an appealing entrepreneurial narrative for both the textual description and the video pitch. This may contribute to sustainable crowdfunding projects being more successful and thus develop their full potential for society and the environment.

D. Study 3: The role of novelty language in mobilizing backers and securing funding in reward-based crowdfunding[3]

1 Introduction

On reward-based crowdfunding platforms, entrepreneurs present projects to a large online crowd to raise external funding. The projects aim to develop novel or innovative products or services, which the crowd usually receives as a reward in exchange for their financial contribution (Cumming et al., 2017). Although novelty is an overarching theme in crowdfunding, empirical evidence about the effect of novelty promotion in crowdfunding projects is limited and presents contradictory findings. Prior research from equity-based crowdfunding or artistic categories of reward-based crowdfunding platforms finds *positive* (B. Xu et al., 2016), *negative* (Horvát et al., 2018) or *inverted U-shaped* (Wei et al., 2021) relationships between novelty and crowdfunding performance. Our study aims to help reconcile these contradictions and add insights from reward-based crowdfunding projects on the promotion of novelty language.

To conceptualize the effects of novelty on crowdfunding performance, we employ the theoretical lens of language expectancy theory (LET). The theory considers language to be a rule-governed system in which audiences develop expectations about the language used in certain social situations based on personal, social, and context norms. If the language used then differs from these expectations, a positive or negative violation occurs, which results in either positive or negative attitude changes among the audience (Burgoon et al., 2002). We use LET to explain why backers expect novelty language in the entrepreneurial narrative of crowdfunding projects and how novelty language is received differently by different backer groups.

[3] This chapter is co-authored by Eva Lutz and in a working paper status.

In particular, our study offers three contributions. First, we add to the literature involving novelty in venture financing and demonstrate how novelty language impacts funding success. Second, we advance the discussion about communication in crowdfunding research. While the vast majority of previous crowdfunding studies viewed backers and entrepreneurs as a homogenous entity, we draw on LET to unravel how language in crowdfunding projects has different effects on different backers based on the social category of the entrepreneur. In detail, we examine how novelty language affects the proportion of first-time backers that pledge to a crowdfunding project and how this relationship is moderated by the entrepreneur's gender. Third, we improve the methodological approach to measuring novelty in crowdfunding projects. We capture linguistic information from both project descriptions and transcribed video pitches and are thus able to demonstrate how backers react differently to different novelty language scores.

In our study, we capture novelty as a linguistic construct by employing a content analysis algorithm that counts novelty language cues. We use the computer-aided text analysis (CATA) tool CAT Scanner by McKenny et al. (2012) for a sample of 1,294 reward-based crowdfunding projects from Kickstarter. We find that novelty language positively affects the funding success of crowdfunding projects. Moreover, novelty language also impacts backer mobilization, as our empirical results suggest that novelty language disproportionately creates traction among first-time backers compared to more experienced backers. Finally, we demonstrate that the positive relationship between novelty language and the proportion of first-time backers is higher for female-led projects than for male-led projects.

The following section presents an overview of prior literature on novelty language in entrepreneurship and the theoretical background on which we develop our research hypotheses. In Section 3, we describe our dataset and methods. We present the results of

the empirical analysis in Section 4. In Section 5, we discuss our results and compare them to extant findings, address our contributions, and highlight limitations of this study that open up avenues for future research. Finally, our conclusions are presented in Section 6.

2 Theoretical background and hypotheses development

Ventures that are new to the market possess a skill set that is typically unproven and not observable by stakeholders. Because of this lack of information, stakeholders have difficulties objectively assessing the venture and its offering (Fisher et al., 2016; Santos & Eisenhardt, 2009). However, a convincing communication strategy helps new ventures gain legitimacy and show market potential to investors and consumers (Cornelissen & Clarke, 2010; Wry et al., 2011). In pursuit of unraveling the mechanisms of such a strategy, entrepreneurship scholars typically use signaling theory to answer *what* type of communication positively affects venture success and framing theory to answer *how* communication strategies influence venture success. For example, scholars find that exposing the entrepreneur's social and human capital, personal credibility (e.g., through certifications or past achievements), or stakeholder relationships affects resource acquisition (Belleflamme et al., 2014; Huang et al., 2021; Vismara, 2018). Product- or service-wise, communicating general quality, social or environmental features, or innovativeness has an impact on stakeholders (R. C. Chan & Parhankangas, 2017; Kunz et al., 2017; von Selasinsky & Lutz, 2021).

Crowdfunding projects typically consist of a textual description and a video pitch, which together represent the "entrepreneurial narrative" (Martens et al., 2007). Here, the entrepreneur advertises his or her offering and highlights a strategic selling proposition (S. Manning & Bejarano, 2017). In contrast to established companies, which can use a traditional marketing mix including commercials or press releases to draw attention or convey a brand message, the entrepreneurial narrative is most commonly the only

communication channel for entrepreneurs on crowdfunding platforms (Lin et al., 2019). Therefore, applying a communication strategy to the entrepreneurial narrative is particularly relevant on crowdfunding platforms, where entrepreneurs have to attract the attention of potential customers against dozens of other pledging opportunities. On the Kickstarter website, for example, approximately 3,000 projects are created every month on average (Kickstarter, 2020c). Moreover, since the entrepreneurial narrative is self-reported, backers have few options to verify or monitor statements about the product or service's features. Potential backers might be concerned about the offering's quality, since the venture is relatively new to the market and cannot rely on a brand history (Pan et al., 2020). Here, applying a communication strategy helps to gain appreciation among customers and reduce skepticism. Consequently, communication is relevant in reward-based crowdfunding, where possible pledging decisions are numerous and go hand in hand with uncertainty and incomplete information (Agrawal et al., 2014; Giorgi, 2017).

In light of this, studies on communication in reward-based crowdfunding have advanced in the last few years, taking into account the heterogeneous nature of crowdfunding. A globally dispersed crowd, entrepreneurs of various kinds, and large variations across and within project categories make it necessary to analyze communication in more detail (Parhankangas & Renko, 2017). One theoretical approach that provides additional explanatory power is language expectancy theory (LET). LET considers language to be a rule-governed system that affects the outcomes of communication. Based on personal (e.g., the credibility of the communicator), social (e.g., interaction with the audience), and context norms, audiences develop expectations about the appropriateness of certain language in certain social situations. These expectations do not only apply to one communicator but rather hold true for entire social categories. Based on this condition, LET explains that the choice of specific language may negatively or positively violate the

audience's expectations (Averbeck, 2010). Negative violations, that is, failing to fulfill expectations, result in negative attitude changes and decrease the power of persuasion. Positive violations occur when the expectations of the audience are exceeded, leading to positive attitudes and increasing persuasiveness. Communicators considered to be of high credibility (e.g., white males) have numerous options when choosing a communication strategy without violating the audience's expectations. On the other hand, social categories that face lower-credibility prejudices such as racial minorities or women face a lower spectrum of language that conforms to the audience's expectations. Thus, these social categories might choose language that compensates for their low-credibility status, which implies that they need to be careful when choosing words so that audiences perceive them as credible. This in turn increases the persuasiveness of their message (Burgoon et al., 2002).

With regard to reward-based crowdfunding, LET broadens the scope of communication research as it sheds light on how communication strategies have a different effect on different audiences based on the social category of the communicator. In this vein, Peng et al. (2021) draw on LET to explain how words and phrases associated with success or failure differ within the movie category of Kickstarter. They find that backers expect language that represents the entrepreneur's reputation and credibility, for example through language of high cognitive complexity. Language that expresses negative sentiments violates these expectations and decreases funding probability. Parhankangas and Renko (2017) use LET to uncover that the effect of linguistic styles on crowdfunding success varies for entrepreneurs that belong to either the social or the commercial category. Entrepreneurs positioned in the social realms profit from precise and concrete language, as it positively violates backers' expectations.

The simple but profound definition by Low and MacMillan (1988) of entrepreneurship as the "creation of new enterprise" points out that novelty lies at the center of entrepreneurship. Consequently, extant research in this domain has discussed the connection between value creation and novelty, or the closely related concept of innovation. One topic that has aroused controversies is how beneficial novelty or innovativeness is for young ventures, which is reflected in conflicting research results.

On the one hand, a stream of researchers finds empirical evidence that ventures communicate their novelty to highlight their uniqueness and distinguish themselves from the established practices of competitors. Communicating novelty as competitive differentiation includes emphasizing new or updated technologies or original business ideas (Navis & Glynn, 2010), which affects productivity and is critical for venture success (Hyytinen et al., 2015; Jennings et al., 2009). For example, Dutta and Folta (2016) study venture capital and angel group investments and find that novelty, measured as the number of patent citations, correlates with the funding of technology ventures. Pan et al. (2020) analyze press releases and media reports of investment events via content analysis. They find that information technology ventures that promote novelty are more likely to attract venture capital funding.

On the other hand, e.g., Cunningham (2017) investigates a set of medical device startups from the US and finds that technological innovativeness had no impact on competitive advantage. As for crowdfunding, Horvát et al. (2018) examine novelty as promoted through language in the entrepreneurial narrative of equity-based crowdfunding projects. They conceptualize novelty as the extent to which the entrepreneurial narrative combines different ideas, labeled as topic entropy. They find that the degree of novelty in the entrepreneurial narrative has a negative relationship with fundraising success, although novel projects are more likely to attract large-sum investors. These findings, however,

cannot be generalized to other forms of crowdfunding, since equity-based crowdfunding underlies specific logics such as being more long-term-oriented (Collins & Pierrakis, 2012).

Novelty in reward-based crowdfunding has been a research focus of marketing scholars. B. Xu et al. (2016) use an online survey to explore what drives satisfaction in crowdfunding. They evaluate how important product or service novelty, the communication activeness of the entrepreneur, or the timeliness of rewards is for backers. They find that backers desire novelties and that projects with high uniqueness and originality provide backer satisfaction. Wei et al. (2021) analyze novelty in reward-based crowdfunding projects in the film, music, video, and publishing category. They measure novelty on the basis of similarity, that is, how many similar projects have been created on the crowdfunding platform before. They find an inverted U-shaped relationship between novelty and crowdfunding success.

With our study, we expand the discussion about novelty in crowdfunding by applying a novelty lens to reward-based crowdfunding projects in the technology category. Moreover, to our knowledge, we are the first to employ a more nuanced approach to measure novelty in crowdfunding research based on content analytic dictionaries.

We find this approach more expedient than, e.g., topic entropy, since extant research provides evidence that vocabularies and words are essential to construct meaning and persuade audiences (Jones & Livne-Tarandach, 2008; Loewenstein et al., 2012). Moreover, our approach allows us to capture a more universal understanding of novelty compared to the similarity-based approach, in which novelty is expressed in proportion to prior crowdfunding projects. We utilize the full information available in crowdfunding projects and use both textual descriptions and transcribed video language as entrepreneurial narratives for our sample.

Finally, we contribute to the discussion about crowd engagement in two novel ways. First, based on our unique dataset, we are able to analyze the relationship between the promotion of novelty and pledges by first-time backers. Second, we examine how being a female entrepreneur moderates the aforementioned relationship, adding to the evolving research stream on how the social category of an entrepreneur affects audiences and their actions.

2.1 Novelty language and funding success

Prior studies suggest that the relationship between communication and the outcome of a crowdfunding project depends upon the product or service characteristics communicated in the entrepreneurial narrative (H. F. Chan et al., 2019). An important product or service characteristic concerning the outcome of crowdfunding projects is novelty (Lambert & Schwienbacher, 2010; Wei et al., 2021; B. Xu et al., 2016). Accordingly, we expect that a novel product or service idea will likely affect the relationship between the entrepreneurial narrative and the project outcome.

As outlined by LET, audiences develop expectations about the use of certain language based on situational norms (Burgoon et al., 2002). In line with this reasoning, we assume that the expectations of the typical crowdfunding backer are based on the entrepreneur (personal norms), the relationship between the entrepreneur and themselves (social norms), and the crowdfunding platform (context norms).

Concerning the entrepreneur, extant research provides evidence that successful entrepreneurs are commonly credited as risk-taking, innovative, and committed to pushing boundaries (Gupta et al., 2014; Henderson & Robertson, 2000; Verheul et al., 2005). Consequently, backers most likely look for these qualities when evaluating entrepreneurs, given that backers are typically inexperienced investors. Thus, we suppose that backers expect language that reflects the entrepreneur's capability to create novel products or

services (e.g., “Kim is the innovative mind behind the project, who worked as a developer on cutting-edge technologies”).

Backers are a “different kind of investor.” They are investors and consumers at the same time, which shapes the relationship between them and the entrepreneur (Assenova et al., 2016). Backers develop strong personal opinions about the projects and identify themselves with the entrepreneur (Colistra & Duvall, 2017). S. Manning and Bejarano (2017) find that backers expect the entrepreneurial narrative for novel products or services to be presented as “results-in-progress” with language about the utility and practicability of the novelties. These findings correspond to the Kickstarter demographics, showing that backers are typically early adopters who are passionate about new or advanced projects (Stanko & Henard, 2016). Consequently, we propose that the typical backer expects detailed language concerning the project’s novelty (e.g., “The 3D printer opens up new possibilities to manufacture futuristic objects”).

Regarding context, Kickstarter’s mission is to help entrepreneurs “share new visions” and “connect people around creative projects and the creative process” (Kickstarter, 2020c). Thus, we assume that communication on Kickstarter is inherently novelty-related and innovation-focused and that backers’ expectations concerning language match Kickstarter’s aspirations.

With novelty being one overarching theme for all these norms, the typical backer expects language that demonstrates the entrepreneur’s innovative skills and features novel product or service features, all embedded in the reward-for-pledge context of Kickstarter. Drawing on LET, this would mean that projects that communicate their novelty as reflected by the dictionaries fulfill the backers’ expectations and consequently are more likely to be funded. Therefore, we hypothesize the following.

Hypothesis 1: Rising novelty language scores in the entrepreneurial narrative increase the probability that a crowdfunding project is funded successfully.

2.2 Novelty language and the proportion of first-time backers

Making a purchase decision online is accompanied by certain risks (Ariffin et al., 2018). We believe that these risks are present in reward-based crowdfunding because the crowd intends to consume the products or services they pledge to on an online platform (Assenova et al., 2016). In detail, we believe that security, time, and product risk influence the pledging decision of backers.

Time risk influences online purchasing behavior in that a website is cumbersome to navigate, gathering information about the products or services is complex, and the actual purchasing process, such as signing up and filling out personal and financial information, is time-consuming (Dai, 2007; Forsythe et al., 2006). Concerning security risks, online users fear that in the process of signing up on a platform, they reveal sensitive data such as their home address or credit card information, which might be leaked in the course of a cyber-attack on the website (Azizi & Javidani, 2010; Soltanpanah et al., 2012). Product risk in an online setting results from consumers being unable to evaluate product or service qualities like functionality, size, or color in reality before their purchase decision. Thus, product risk is a potential loss due to the fact that a product or service does not perform the way it was intended or advertised online (Dai, 2007; L. Zheng et al., 2012).

When pledging for the first time on a reward-based crowdfunding platform such as Kickstarter, backers have to overcome time and security risks. First, they need to sign up and create an account on the crowdfunding platform's website, with which they might not be familiar. Second, they need to disclose their personal and credit card information and fill in the corresponding form. Thus, first-time pledging takes a considerable amount of time and is typically connected to the fear that sensitive data might be stolen.

With risks that might restrain online users from becoming backers, we believe that novel and innovative projects help to overcome these barriers. Marketing scholars find that novel and innovative products drive consumers' purchase decisions (Lambert & Schwienbacher, 2010; Singh, 2006). In this vein, we assume that first-time backers in particular expect crowdfunding projects to feature novel products or services, since novelty is an overarching theme of reward-based crowdfunding. With regard to LET, we assume that communicating novelty language fulfills the expectations of first-time backers, as they are attracted by novel products or services they might not acquire elsewhere, which make it worth dealing with the time and security risks when signing up on the crowdfunding platform.

However, highly novel or innovative products or services also feature a high product risk, especially in reward-based crowdfunding, where all projects are in the making (S. Manning & Bejarano, 2017). More experienced backers have potentially experienced product risk firsthand with a former project they were involved in and can therefore assess product risk more comprehensively and competently than first-time backers. Consequently, we assume that more experienced backers are more aware of the risks accompanying novel products or services and thus have different expectations concerning novelty language, that is, they expect lower levels in the entrepreneurial narrative. Therefore, we hypothesize the following.

Hypothesis 2: The proportion of first-time backers pledging to a crowdfunding project increases with rising novelty language scores in the entrepreneurial narrative.

2.3 The moderating role of gender on funding success and the mobilization of first-time backers

LET explains how communication strategies have a different effect on different audiences based on the social category of the communicator. For example, male communicators are considered to be highly credible, while female communicators are attributed a lower

credibility status (Burgoon et al., 2002), which is a long-running assumption also in the field of entrepreneurship (Ahl, 2006). Here, gender stereotypes claim that women are less innovative and not as open to new ideas as their male counterparts (Carter et al., 2001; del Mar Fuentes-Fuentes et al., 2017). With regard to LET, these assumptions and prejudices impact the personal norms which shape backers' expectations concerning the language used. However, social categories that are associated with a lower credibility status can positively violate the expectations of the audience. If a positive violation occurs, the expectations of the audience are exceeded, which creates additional positive attitudes and persuasiveness in favor of the communicator (Burgoon et al., 2002). Based on this condition, we assume that female entrepreneurs who promote high levels of novelty language create a positive violation regarding the lower-credibility prejudices that are attached to their social category. We assume that this positive violation created through novelty language affects both funding success and backer mobilization.

Concerning funding success, we previously argued in Hypothesis 1 that crowdfunding projects promoting novelty language fulfill backers' expectations and are more likely to be funded. However, as outlined by LET, female entrepreneurs that promote novelty language exceed backers' expectations and increase the persuasiveness of their entrepreneurial narrative. Thus, the positive relationship between novelty language and funding success may be stronger for women-led crowdfunding projects than for male-led crowdfunding projects, since male entrepreneurs only meet backers' expectations and do not benefit from the additional persuasiveness created by the positive violation. Therefore, we hypothesize the following.

Hypothesis 3: The effect of rising novelty language scores in the entrepreneurial narrative to increase the probability of successful funding is stronger for female than for male entrepreneurs.

With regard to backer mobilization, we reasoned in Hypothesis 2 that novelty language disproportionately mobilizes first-time backers compared to more experienced backers, since first-time backers assess the risk that is accompanied by an online purchase differently (Ariffin et al., 2018; Forsythe et al., 2006). How the entrepreneur's gender moderates the impact of novelty language on the mobilization of first-time backers will consequently be determined by how gender affects the assessment of these risks. In detail, we argue that the positive violation created by a female entrepreneur promoting novelty language increases the willingness to deal with time and security risks. Since the perception of the unexpected novelty and innovativeness of a female-led crowdfunding project exceeds backer expectations, backers might be more willing to jump the hurdle of registration. As we outlined above, backers are attracted by novel products or services they might not acquire elsewhere. Here, the fact that the entrepreneur is female fosters this attraction, as women are considerably underrepresented in entrepreneurship, which is why consuming from a women-led startup is more uncommon (Brush et al., 2018; Guzman & Kacperczyk, 2019; Kuschel, 2019; Robb & Coleman, 2009). If, on the other hand, a male entrepreneur promotes novelty language in the entrepreneurial narrative, the project does not mobilize first-time backers as strongly, as novelty language would simply meet the audience's expectations, making it less worthwhile to deal with time and security risks. Based on the reasoning above, we propose that the entrepreneur's gender moderates the impact of novelty language on the proportion of first-time backers. Therefore, we hypothesize the following.

Hypothesis 4: The effect of rising novelty language scores in the entrepreneurial narrative to increase the proportion of first-time backers is stronger for female than for male entrepreneurs.

3 Data and Methods

We retrieved data from the Kickstarter website via a web-crawling algorithm. The algorithm retroactively collected projects posted in the technology category. We chose the technology category because Kickstarter demands a manufacturing plan and a delivery date for rewards from technology projects, which is why they are more likely to establish themselves in the market as enterprises (Scheaf et al., 2018). Moreover, including only technology projects ensures project comparability within the sample. We included projects with a minimum funding goal of 5,000 USD, which is in line with existing crowdfunding research. Including only relatively large projects facilitates comparing our findings to traditional financing options (Mollick, 2014).

First, a random sample of 1,400 US-based technology projects was drawn from the Kickstarter website. We discovered 83 projects that indicated they were US-based but were in fact from foreign countries. Furthermore, 23 projects were removed whose campaign data was missing because the entrepreneur's Kickstarter account had been deleted. Thus, our final dataset consists of 1,294 projects from the technology category that were located in the US. To capture the full entrepreneurial narrative of the projects, we collected the textual project descriptions and the video pitches. We transcribed the video pitches using the subtitle function of YouTube. Here, the automated voice recognition algorithm extracted all linguistic information from the pitches, which were later compared to 60 manually transcribed video pitches to ensure that the algorithm was accurate. We identified that the YouTube algorithm captures more than 90% of linguistic information correctly. We then manually checked all transcriptions for inconsistencies such as special characters or double entries and added the transcriptions to the textual descriptions.

Using both the transcripts and the textual descriptions addresses a methodological shortcoming commonly present in crowdfunding studies that employ content analysis.

Studies measuring linguistic constructs by only analyzing the textual descriptions are more prone to measurement errors because they do not capture all the information backers take into account.

Finally, we collected information from the Kickstarter analytics website BiggerCake, which serves as a campaign tracker and data tool for the numbers behind Kickstarter projects. A unique feature of BiggerCake relates to the tracking of first-time and more experienced backers. Through this feature, we were able to determine the percentage of backers that pledged to a project for the first time. Accordingly, we scraped this ratio from BiggerCake and merged it with our dataset.

3.1 Dependent variables

In our study, we utilize two different dependent variables. We use *successfully funded* for our first and third models, which is a dichotomous variable that indicates if the project reached its predefined financial goal (Parhankangas & Renko, 2017). This variable takes Kickstarter's all-or-nothing approach into account. If a project fails to reach this financial goal by the deadline, "no money changes hands" (Kickstarter, 2020a). We coded '1' if the project met its goal and '0' otherwise.

For our second and fourth models, we included *proportion of first-time backers* as a dependent variable. This variable is the ratio of first-time backers to non-first-time backers, or more experienced backers, supporting a project. First-time backers are new members of the crowdfunding platform and have not pledged to a crowdfunding project before.

For the dichotomous variable *successfully funded*, we use logistic regression to estimate our models. Linear regression is utilized for *proportion of first-time backers*.

3.2 Independent variables

To assess our independent variable, novelty language, we used a content analytic novelty dictionary created by Pan et al. (2020), which was intended to measure novelty language from press releases of venture capital investment events. We consider the dictionary to be suitable for our study because the authors captured novelty as an inherently entrepreneurship-based concept. Accordingly, the dictionaries were created and validated to be applicable in a general entrepreneurship context. We utilized the computer-aided text analysis (CATA) tool CAT Scanner (McKenny et al., 2012), which in our case measures the salience of novelty language based on the frequency of words, word stems, and phrases (Short et al., 2018). Compared to manual coding, CAT Scanner has the methodological benefit that large amounts of text can be analyzed without the risk of coder fatigue or coder disagreement (McKenny et al., 2018).

Longer narratives are more likely to capture novelty language, which would lead to an endogeneity problem. Thus, we remove the influence of narrative length by dividing the amount of novelty language by the word length of the narratives (Anglin, Wolfe, et al., 2018). Afterwards, this score is multiplied by 100, so that a score of, e.g., 5 reflects that 5% of the language used is related to novelty.

3.3 Moderating variable

We include the binary variable *gender* as a moderator. We indicate if the project initiator is male or female via the entrepreneur's profile on Kickstarter. If more than one entrepreneur launched the project, we determined whether the creator of the project or the head of the team was male or female.

3.4 Control variables

We control for differences in the predefined financial *goal*s of projects, since extant research finds that the funding goal impacts crowdfunding success (Hakenes & Schlegel,

2014). For example, a higher funding goal decreases the chances of successful funding (Cordova et al., 2015). Furthermore, funding goals are also used by backers as a signal from which they draw important information about the project (Hakenes & Schlegel, 2014). We also account for the total *amount pledged* during the project duration, irrespective of whether the predefined goal was met or not. This variable provides additional information for our analysis: as it is a continuous measure, we can specify whether a project secured no funding at all or overachieved and easily exceeded the funding goal. To account for the high degree of skewness, we used the natural log of the variable. Thus, the influence of extreme outliers was corrected. Moreover, we control for whether the project was created by a single entrepreneur or by a *team* (no team = 0 and team = 1) and how many crowdfunding projects the entrepreneur (or the team) had *created* or *backed* in the past. This indicated their past experience with the crowdfunding platform (Anglin, Wolfe, et al., 2018). To control for the interaction between the entrepreneur and the crowd, we use the number of *updates* and *comments* (Wang et al., 2018). With respect to the moderate skewness of these variables, we use the square root of the number of updates and comments. Lastly, we include if the Kickstarter account of the project initiator is connected to Facebook (Mollick, 2014). Extant research finds that the chances of successful funding increase when a crowdfunding project is linked to a social network, since being connected to Facebook serves as a marker for social capital in online communities (Giudici et al., 2013; H. Zheng et al., 2014).

4 Empirical Results

Hypotheses 1–4 were tested by constructing a series of logistic and linear regression models with *successfully funded* and *proportion of first-time backers* as dependent variables. We accounted for multicollinearity by estimating the values of our correlation coefficients and the variance inflation factors (Kennedy, 2003). Table D-1 shows the descriptive statistics

for our sample, while the variance inflation factors (VIF) and Pearson correlation coefficients for the independent variables are indicated in Table D-2. With all pairwise correlation coefficients below the threshold of 0.8 and the variance inflation factors ranging from 1.00 to 2.79, we conclude that multicollinearity does not affect our regression models (O'brien, 2007).

Table D-1: Descriptive statistics

Variables	N	Mean	SD	Min	Max
Dependent variable:					
Successfully Funded	1294	.342	.475	0	1
First-Time Backers	1294	.179	.25	0	.944
Independent variable:					
Novelty	1294	2.96	1.31	0	20
Moderator variable:					
Gender	1294	.158	.365	0	1
Control variables:					
Goal	1294	105000	1680000	5000	6.00e+07
Log Amount Pledged	1294	6.789	3.891	0	14.847
Team	1294	.361	.48	0	1
Created	1294	1.524	1.674	1	26
Backed	1294	3.186	10.721	0	132
sq Updates	1294	1.718	2.021	0	18.221
sq Comments	1294	4.843	9.688	0	92.201
Facebook	1294	.354	.478	0	1

This table presents the descriptive statistics of the variables in our regression models.

Table D-2: Variance inflation factors (VIF) and pairwise correlation coefficients between the independent variables

Variables	VIF	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1 Novelty	1.02	1.000									
2 Goal	1.00	-0.003	1.000								
3 log Pledged	2.59	-0.111	-0.027	1.000							
4 Team	1.30	-0.034	-0.027	0.469	1.000						
5 Created	1.13	-0.037	-0.015	0.162	0.056	1.000					
6 Backed	1.22	-0.016	-0.005	0.260	0.079	0.327	1.000				
7 sq Updates	2.79	-0.119	-0.010	0.742	0.363	0.183	0.300	1.000			
8 sq Comments	1.90	-0.087	-0.014	0.596	0.345	0.124	0.179	0.666	1.000		
9 Facebook	1.03	0.001	0.033	-0.079	-0.045	0.054	0.089	-0.041	-0.079	1.000	
10 Gender	1.01	0.026	-0.015	-0.009	-0.022	0.002	-0.007	-0.051	-0.060	-0.033	1.000

This table presents the variance inflation factors (VIF) and the pairwise Pearson's correlation coefficients of the independent variables used in the regression models.

In Hypothesis 1, we propose that novelty language will be positively related to the probability that a crowdfunding project is funded successfully. In Model 1, the coefficient for novelty language is positive and significant at the 1% level. This suggests that a rising novelty language score in crowdfunding projects increases the probability of being funded

successfully. This is in line with what we expected because crowdfunding projects that communicate their novelty fulfill backers' expectations. Hence, Hypothesis 1 is supported. Figure D-1 provides the plot for successful funding and the proposed positive relationship with novelty language. The amount of novelty language is shown as scores ranging from 0 to 5. A score of 5 represents 5 words of novelty language per 100 words. The mean score of novelty language is 2.9, while the standard deviation is 1.3. Thus, the plot includes a range of roughly two standard deviations in both directions originating from the mean value. Figure D-1 illustrates that if a crowdfunding project e.g., promotes novelty language with a score of 1, the probability that this project will be funded successfully is approximately 32%. If, however, a project promotes higher novelty language scores, e.g., a score of 4, the probability that this project will secure the predefined funding goal is roughly 36%. Accordingly, the plot as depicted in Figure D-1 indicates that the results align with the proposed positive relationship between novelty language and funding success.

Hypothesis 2 proposes that the proportion of first-time backers pledging to a crowdfunding project increases with rising novelty language scores. In Model 2, the coefficient for novelty language is positive and significant at the 5% level. This result suggests that rising novelty language scores disproportionately attract first-time backers because these backers need more novelty language to jump the hurdle of registry, which is connected to time and security risks. Consequently, Hypothesis 2 is supported. Figure D-2 plots the proposed positive relationship of rising proportions of first-time backers with novelty language.

In Hypothesis 3, we propose a moderating effect of gender on successful funding. We previously argued that female entrepreneurs promoting high novelty language scores exceed backers' expectations. Thus, the effect that rising novelty language scores should increase the probability of successful funding is stronger for female than for male

entrepreneurs. However, we do not find significant coefficients for the aforementioned relationship, which is why we cannot support Hypothesis 3.

Following Hypothesis 4, we test for a moderating effect of gender on the proportion of first-time backers. In detail, we assume that the effect of rising proportions of first-time backers based on the use of novelty language is stronger for female entrepreneurs than for male entrepreneurs. In Model 4, the coefficient for moderation is significant at the 5% level. This result suggests that high novelty language scores in female-led crowdfunding projects create a positive violation. This entails that backers are more willing to deal with time and security risks, as a novel product or service which is offered by a female entrepreneur is a strong motivator to sign up to the crowdfunding platform and pledge to the project. As a result, Hypothesis 4 is supported.

In Figure D-3, we plot two lines representing whether the entrepreneur of a crowdfunding project is female or male. The slopes of the curves are both positive, indicating a continuing overall positive effect of novelty language on the proportion of first-time backers. However, if the entrepreneur of a crowdfunding project is female, the effect becomes more positive. For female entrepreneurs, the slope of the curve b = 0.031, in contrast to male entrepreneurs with b = 0.006. Accordingly, the positive relation between novelty language and the proportion of first-time backers becomes stronger in cases where the entrepreneur is female. In fact, if the novelty language increases by one point in a female-led project, the proportion of first-time backers rises by roughly 3%. For their male counterparts, the proportion of first-time backers increases by 0.6% per point of novelty language.

Tables D-3 and D-4 provide the results of our hypothesis tests for our dependent variables *successfully funded* and *proportion of first-time backers*, respectively.

Table D-3: Regression analysis for Successfully Funded

Dependent variable	**Model 1**	**Model 3**
Successfully Funded		
Independent variable:		
Novelty	0.548***	0.464*
	(0.203)	(0.239)
Moderator variable:		
Gender	0.650	
	(0.490)	
Moderator terms:		
Gender x Novelty		0.305
		(0.417)
Control variables:		
Goal	-0.000***	-0.000***
	(0.000)	(0.000)
Log Amount Pledged	2.681***	2.699***
	(0.320)	(0.323)
Team	-0.058	-0.064
	(0.381)	(0.381)
Created	-0.076	-0.074
	(0.063)	(0.064)
Backed	-0.008	-0.008
	(0.017)	(0.018)
sq Updates	0.729***	0.712***
	(0.198)	(0.198)
sq Comments	0.332***	0.332***
	(0.063)	(0.063)
Facebook	0.115	0.134
	(0.397)	(0.399)
Constant	-26.321***	-26.232***
	(3.065)	(3.068)

This table presents the results of the logit regression models to examine novelty language used in crowdfunding narratives on being successfully funded. Standard errors are in parentheses. The symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Table D-4: Regression analysis for Proportion of First-Time Backers

Dependent variable	Model 2	Model 4
Proportion of First-Time Backers		
Independent variable:		
Novelty	0.009**	0.006
	(0.004)	(0.005)
Moderator variable:		
Gender	0.031**	
	(0.016)	
Moderator terms:		
Gender x Novelty		0.026**
		(0.013)
Control variables:		
Goal	-0.000	-0.000
	(0.000)	(0.000)
Log Amount Pledged	0.042***	0.042***
	(0.002)	(0.002)
Team	0.014	0.014
	(0.014)	(0.014)
Created	-0.015***	-0.015***
	(0.004)	(0.004)
Backed	-0.001**	-0.001**
	(0.001)	(0.001)
sq Updates	0.002	0.002
	(0.005)	(0.005)
sq Comments	-0.006***	-0.006***
	(0.001)	(0.001)
Facebook	0.002	0.002
	(0.012)	(0.012)
Constant	-0.090***	-0.080***
	(0.020)	(0.021)

This table presents the results of the linear regression models to examine novelty language used in crowdfunding narratives on the proportion of first-time backers. Standard errors are in parentheses. The symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Figure D-1: Effect of novelty language on funding probability

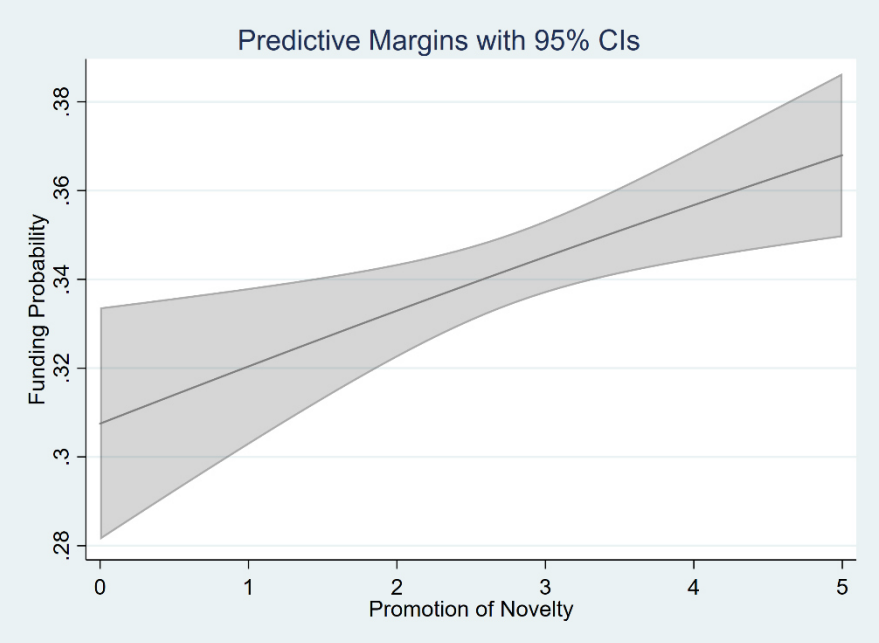


Figure D-2: Effect of novelty language on the proportion of first-time backers

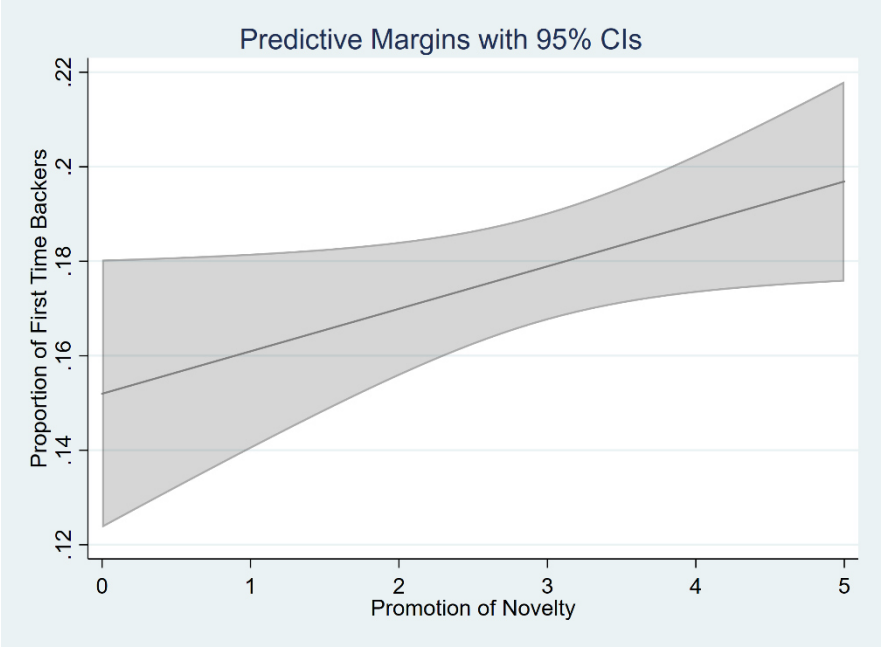
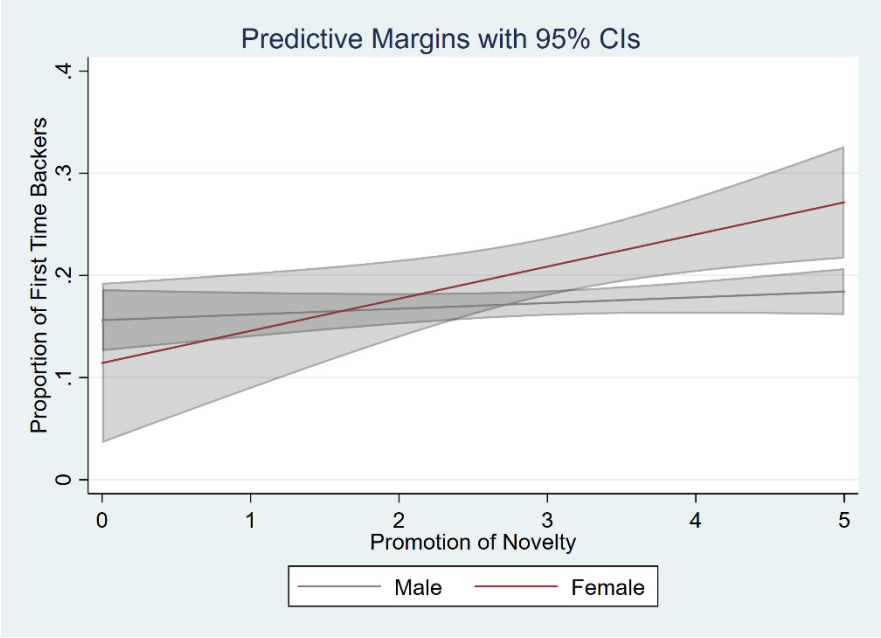


Figure D-3: Interaction effect of gender on the relation between novelty language and the proportion of first-time backers



5 Discussion

In the last decade, online-based crowdfunding has evolved into an established funding source for projects and new ventures (Belleflamme et al., 2014). Crowdfunding platforms offer entrepreneurs the opportunity to present projects online for which potential project backers can provide funding. With our study, we enhance the understanding of what drives funding success and backer mobilization in the context of reward-based crowdfunding. First, we hypothesized and empirically found that novelty language positively affects the funding success of crowdfunding projects. This finding is in line with our theoretical conceptualization that reward-based crowdfunding is inherently novelty-focused and backers expect novel and innovative projects. Accordingly, entrepreneurs need to clearly point out the novelty value of their products or services in the entrepreneurial narrative to create a competitive advantage over comparable projects. Second, novelty language also affects backer mobilization. We find evidence that novelty language in crowdfunding projects can disproportionately create traction among first-time backers compared to more experienced backers. Moreover, we demonstrate that the positive relationship between novelty language and the proportion of first-time backers differs between female-led and male-led projects. As we conceptualized, female entrepreneurs who use novelty language in their entrepreneurial narrative exceed the expectations of first-time backers, who are hence less objective about product risks. Thus, for the same novelty language score, we find higher proportions of first-time backers in female-led projects than in male-led projects.

5.1 Contributions

Our study contributes to the body of research in several aspects. First, we add to the literature concerned with novelty in venture financing. Dutta and Folta (2016) and Pan et al. (2020) identified that ventures promoting novelty are more likely to attract venture

capital funding. We provide support for the presence of an equivalent relationship in reward-based crowdfunding, since we find that novelty language increases the probability of successful funding. As for prior crowdfunding research, we add to the discussion that the negative relationship between promoting novelty and fundraising success in equity-based crowdfunding identified by Horvát et al. (2018) cannot be generalized to reward-based crowdfunding. However, our findings are in line with B. Xu et al. (2016), who find empirical evidence that novelty satisfies backers. Wei et al. (2021) measure novelty as the similarity between crowdfunding projects in the film, music, video, and publishing category. While the authors find an inverted U-shaped relationship between the similarity of projects and funding success, we find a linear relationship for technology projects. This indicates that backers seem to have different expectations about projects based on the crowdfunding category.

Second, our study broadens the discussion about communication in crowdfunding research. Previous studies drawing on LET used the theory to explain the general expectations of crowdfunding backers (Peng et al., 2021) or that the effect of linguistic styles on crowdfunding success varies for social and commercial entrepreneurs (Parhankangas & Renko, 2017). However, we are, to our knowledge, the first to unravel how language in crowdfunding projects has different effects on different backers based on the social category of the entrepreneur. We find that first-time backers resonate more strongly with novelty language than more experienced backers, which leads to the assumption that not all backers are created equal and that we cannot refer to the "crowd" but rather to "crowds" that possess different expectations. In addition, our results indicate that these expectations can vary within these crowds based on the entrepreneur's characteristics, in our case, the entrepreneur's gender. These insights support the assumption of gender-based differences in venture financing. However, our results challenge prior findings that female

entrepreneurs are generally disadvantaged when trying to access funding sources (Greenberg & Mollick, 2015), since female entrepreneurs seem to benefit more strongly from using novelty language in terms of the proportion of first-time backers.

Third, we improve the methodological approach to measuring novelty in crowdfunding narratives. For example, R. C. Chan and Parhankangas (2017) employ MTurk to measure the kindred concept of innovativeness and categorize entrepreneurial narratives as incrementally or radically novel or innovative. Horvát et al. (2018) account for novelty using topic entropy, referring to the extent to which the entrepreneurial narrative combines different ideas. Here, an equity-based crowdfunding project is considered novel when it covers different topics at the same time. However, by using CATA, we depart from the literature as we unpack entrepreneurs' specific choice of words and phrases when communicating with backers. Thus, we can observe that backers react differently to increasing novelty language scores.

5.2 Practical implications

Our study also has practical implications. Entrepreneurs planning to launch a crowdfunding project may use the results from this study to craft their campaign narratives according to backers' expectations. In that respect, using novelty language can be beneficial to secure funding and mobilize new backers. Although mobilizing backers is not necessarily linked to funding success, it does impact the overall performance of a project in that backers may provide important information about the market acceptance of a product or service. Moreover, since crowdfunding backers are typically highly involved in the projects they pledge to, they may suggest valuable improvements concerning design or functionalities via the projects' comment sections (Davidson & Poor, 2016; Skirnevskiy et al., 2017; Wang et al., 2018). In this vein, mobilizing first-time backers could be especially beneficial for

their input, as they might contribute a new and fresh perspective when interacting with entrepreneurs.

As for crowdfunding platforms, our findings might be interesting when guiding entrepreneurs on how to create a compelling entrepreneurial narrative. Kickstarter, for example, offers writing workshops that help entrepreneurs convincingly "tell their story" (Kickstarter, 2020b). Here, encouraging entrepreneurs to use novelty language, especially female entrepreneurs, could be beneficial for the platform, as our results suggest that this mobilizes new "crowds" to sign up to the platform.

5.3 Limitations and future research

First, we must acknowledge the methodological limitations of our study. We capture novelty language using content analytic dictionaries designed to measure novelty in a venture capital context. Although the authors captured novelty as an entrepreneurship-centered concept, we do not provide external validation for the dictionaries and therefore cannot guarantee the reliability of our measure in a crowdfunding context. Second, we sought to use all linguistic information that was available in crowdfunding projects and thus used the campaign descriptions and the transcribed video pitches as a basis for our analysis. However, there is linguistic information that we did not collect using our automated web-crawler. This concerns linguistic information that is embedded in graphics and text from the projects' comment and update sections. Consequently, we did not include the complete linguistic information available to backers, which is why our findings might be exposed to potential measurement errors.

Our study also has limitations that serve as a foundation for future research opportunities. Our dependent variable *proportion of first-time backers* divides backers into those that are pledging to a project for the first time and those who have pledged to a different project on Kickstarter before. However, we do not know if the Kickstarter first-time backers have not

gained experience on a different crowdfunding platform before, such as Indiegogo. On the other hand, based on the data available, we are unable to indicate whether a more experienced backer has pledged to one or multiple Kickstarter projects before. Thus, we encourage future studies to employ a qualitative research design to explore the difference between inexperienced and experienced backers (e.g., Kickstarter's superbackers—backers that pledge to at least 25 projects per year) and how they respond to novelty language.

Moreover, we challenge future research to replicate our results in equity-based crowdfunding. We would like to see how novelty language, in comparison to topic entropy (Horvát et al., 2018), affects funding in a context where backers have strong financial motivations and the investments are long-term-oriented (Collins & Pierrakis, 2012). Finally, our approach to transcribing the video pitches could open up an avenue for future studies. Here, we reduce a variety of valuable information to just text. However, the usual pitch video shows the entrepreneur explaining and presenting the product or service. Consequently, important paralinguistic cues such as body language or tone that emphasize or trivialize certain statements become apparent. Future studies could interpret these paralinguistic cues by using AI-assisted coding, which would lead to a better understanding of communication strategies in crowdfunding.

6 Conclusions

We employ language expectancy theory to examine how novelty language affects reward-based crowdfunding projects. We find that novelty language positively impacts funding success and disproportionately attracts first-time backers compared to more experienced backers. Moreover, we demonstrate that gender affects the relationship between novelty language and the proportion of first-time backers. These findings add to our understanding of how best to commercialize novel products and services.

E. Conclusions

1 Summary of research findings and contributions

This dissertation aims to answer what mobilizes backers and drives crowdfunding performance by using three different theoretical lenses and employing computer aided text analysis (CATA). To gain new insights and close the previously identified research gaps, the first study focuses on text-based investor signals from different signal sources, the second study analyzes a sustainability orientation, and the third study is centered around novelty language in crowdfunding.

Advancing the discussion about communication in crowdfunding campaigns

The dissertation broadens our understanding about the effective communication in crowdfunding campaigns to mitigate information asymmetry between entrepreneurs and backers (Study 1). Specifically, the dissertation uncovers that backers appreciate narratives that are comprehensible and convenient (e.g. stating clear facts), feature a clear message with a positive tone, and indicate professionalism. With these findings, the dissertation expands the information landscape regarding factors that determine a successful crowdfunding campaign and thus venture funding decisions.

Another aim of this dissertation is to enhance the understanding of whether a pro-social or pro-environmental orientation affects success in reward-based crowdfunding (Study 2). The results indicate that the level of pro-social or pro-environmental orientation has an inverted U-shaped effect on crowdfunding performance which is why entrepreneurs need to find the “right” level of emphasis to create a competitive advantage. Further, the results demonstrate that the inverted U-shaped relationship between the level of a pro-social orientation and crowdfunding performance differs for highly creative and less creative projects. This means that highly creative projects have a higher funding probability,

generate more pledges and mobilize more backers for the same level of pro-social orientation compared to their less creative counterparts.

In this respect, the dissertation contributes to previous research in several aspects. Adding to the literature concerned with what drives crowdfunding success, the results demonstrate how the emphasis of a pro-social or pro-environmental orientation affects the performance of a crowdfunding campaign, while providing evidence that backers differentiate between a pro-social and a pro-environmental orientation. Thus, the dissertation helps to better understand the pledging behavior of backers.

This dissertation unravels the role of novelty concerning crowdfunding success and backer mobilization (Study 3). The results suggest that novelty language positively impacts funding success and disproportionally attracts first time backers. Moreover, the gender of the entrepreneur affects this relationship, since female entrepreneurs seem to mobilize more first time backers when using novelty language.

With these results, the dissertation adds to the literature concerned with novelty in venture financing. In detail, the findings about novelty language positively impacting funding success are in line with prior studies from the venture capital literature (e.g. Dutta & Folta, 2016; Pan et al., 2020), while challenging insights from equity based crowdfunding which state that novelty language measured as topic entropy (the number of different topics addressed in the campaign narrative) is negatively related with crowdfunding success (Horvát et al., 2018). This again indicates that different crowdfunding forms follow different dynamics and rules. As for reward-based crowdfunding, the findings support previous results on novelty (B. Xu et al., 2016) and add to the discussion that backers seem to have different expectations about novelty language based on the crowdfunding category in which the campaign is launched (Wei et al., 2021).

The dissertation also broadens the discussion about communication in crowdfunding research. To our knowledge, this is the first attempt to unravel how language in crowdfunding projects has different effects on different backers based on the social category of the entrepreneur. While conceptually drawing on language expectancy theory, the results suggest that first time backers have different expectations about novelty language compared to more experienced backers which entails that there is no "crowd" but rather "crowds". Moreover, the crowds on crowdfunding platforms combine various logics in their decision-making and react sensitively if campaigns differ from these logics.

Moreover, the expectations about novelty language within the group of first time backers can vary according to the entrepreneur's gender. These insights support the assumption of gender-based differences in venture financing.

Advancing the approaches to measure communication in crowdfunding research

The dissertation provides evidence that investor signals have higher predictive power and thus signal strength for crowdfunding success when they are featured in the textual campaign descriptions instead of the video pitches (Study 1). Nonetheless, video pitches provide additional informational value concerning the decision-making of backers beyond the textual descriptions, as they increase the predictive capability of investor signals for funding success. Previous research has demonstrated that backers tend to react sensitively to increasing signal strengths and signals that originate from different sources (Courtney et al., 2017; Sewaid et al., 2021; Steigenberger & Wilhelm, 2018). Hence, analyzing video pitches provides valuable insights when trying to understand the decision-making of crowdfunding backers. Whereas the widely adopted practice in crowdfunding literature of analyzing only project descriptions serves as an approximation of the full narrative, it does not reflect the entire information basis a potential backer takes into consideration, which might lead to measurement errors (McKenny et al., 2018).

This dissertation also presents findings concerning the measurement of pro-social or pro-environmental orientation in crowdfunding narratives (Study 2). Previous studies on sustainability in crowdfunding disregard to integrate video language from the entrepreneur's pitch. The linguistic data in this dissertation, however, is based on both the textual description and transcribed pitches. This approach allows to account for the precise emphasis that is put on either a pro-social or pro-environmental frame.

In this regard, the dissertation adds to the discussion that backers approve more emphasis on the pro-environmental orientation than on the pro-social orientation and that the appreciation of a pro-social orientation depends upon the creativity of the product or service idea. Accordingly, this dissertation provides new insights into how product or service characteristics impact the relationship between linguistic framing and the outcome of a crowdfunding project.

Finally, the dissertation improves the methodological approach to measure novelty in crowdfunding narratives (Study 3). Prior studies use similarity scores (Wei et al., 2021) to account for how novel a product or service is or a predefined novelty score system (B. Xu et al., 2016) or refer to the extent to which the entrepreneurial narrative combines different ideas (Horvát et al., 2018). However, with using CATA, we depart from the literature as we unpack the entrepreneurs' specific choice of words and phrases when communicating with backers. As a result, the findings provide the insight that backers react differently to increasing scores of novelty language.

Advancing the discussion about the use of linguistic data

This dissertation contributes to linguistic research in crowdfunding and related fields, e.g. when analyzing oral pitches in venture capital investment events (e.g. Brooks et al., 2014) or in business angel pitch screenings (e.g. Clark, 2008). In detail, the findings provide evidence that AI-generated automatic transcriptions come close to human coded

transcriptions in terms of accuracy. For the purposes of big data analytics, researchers are well served by using automated approaches when extracting information from videos.

CATA helps with the barriers that go hand in hand with the complex and multifaceted phenomenon that is crowdfunding. A key advantage of this analysis techniques is its ability to handle and analyze large quantities of linguistic data. Moreover, CATA tools follow consistent coding schemes and coding rules and offer perfect reliability which provides scholars with comparable results (Morris, 1994; Short et al., 2018). This dissertation makes use of these key advantages and provides empirical evidence that dictionaries from several neighboring fields can be utilized in crowdfunding. For example, the dictionaries in this dissertation originate from venture capital investment events or IPO prospectuses, which were partly adapted to the crowdfunding context. Thus, the dissertation leads to the assumption that linguistic dictionaries are applicable in different research environments (McKenny et al., 2018).

2 Practical implications

This dissertation also provides practical implications. The relatively low success rate of roughly 39% for Kickstarter campaigns indicates that crowdfunding success does not come easy (Kickstarter, 2022d). Accordingly, entrepreneurs may use the findings from this dissertation to better craft their campaign narratives. For example, entrepreneurs can incorporate the linguistic signals in the campaign descriptions and improve their chances of funding success (Study 1). Further, entrepreneurs must be aware that while framing a crowdfunding project as sustainable can be beneficial, putting too much emphasis on this frame may backfire and reduce the probability of crowdfunding performance (Study 2). Using novelty language can be beneficial to secure funding and to mobilize new backers. The latter is especially valuable for entrepreneurs who interact with backers and appreciate

a new and fresh perspective concerning the design or functionality of their products and services (Study 3).

Corporations may use the findings from this dissertation to adapt their marketing strategy, as the results give insights on consumer demands. For example, there appears to be room for sustainable considerations in the marketing message, even for products or services in the technology sector and for very early adopters, which backers typically represent (Stanko & Henard, 2016). Moreover, the findings suggest that consumers are willing to overcome barriers to tap into new markets or products, which expands the understanding on how to best commercialize novel products and services. Concerning gender diversity, marketing strategies could underline the impact of women and praise diversity in the design and manufacturing process of novel products or services to attract new customers.

Furthermore, the findings of this dissertation could be used by crowdfunding platforms to guide entrepreneurs how to create a compelling entrepreneurial narrative. Kickstarter, for example, offers writing workshops that help entrepreneurs to convincingly "tell their story" (Kickstarter, 2020b). Here, instructing entrepreneurs to promote an appropriate amount of sustainability orientation that resonates with backers might contribute that sustainable crowdfunding campaigns are more successful. For novelty language, platforms may encourage entrepreneurs and especially female entrepreneurs to highlight the novelty value of their products or services. This in turn could be beneficial for the platform as our results suggest that this mobilizes new "crowds" to sign up to the platform.

3 Limitations and future research

The dissertation has certain limitations that open up avenues for future work. The dissertation focuses on reward-based crowdfunding on the platform Kickstarter. Future research could evaluate if the relationships identified in the dissertation apply to other crowdfunding platforms and other crowdfunding forms (Agrawal et al., 2016). Other

platforms such as Indiegogo feature unique characteristics. For example, whereas on Kickstarter “no money changes hands” if the predefined goal is not reached (Kickstarter, 2020a), entrepreneurs on Indiegogo receive the money that was pledged regardless of the goal (Kunz et al., 2017). Thus, the generalizability of the findings may be limited, which, however, could be explored by researchers. Moreover, future research could try to replicate the relationships that are featured in this dissertation in an equity-based crowdfunding setting, where backers typically invest more long-term oriented and follow a strong financial motivation (Collins & Pierrakis, 2012).

The studies in this dissertation aim to make full use of the textual information available and analyze the crowdfunding campaign descriptions and the transcribed video pitches. However, text embedded in graphics was not captured by the web crawling algorithm. To minimize measurement errors in content analysis, future research should tackle this problem by using enhanced algorithms that feature text recognition from pictures. Moreover, the transcription approach reduces a plethora of information from the video pitches to just language and thus disregards information conveyed through body language and paralinguistic cues. These insights are especially valuable for linguistic research, where e.g. facial expressions might emphasize a certain statement or trivialize it. Future studies thus could use AI-generated coding to empirically assess how non-linguistic cues influence crowdfunding performance.

Finally, this dissertation features initial insights into how first time backers respond differently to certain language compared to more experienced backers. However, we do not know if first time backers are truly inexperienced or gained expertise on other crowdfunding platforms in the past. Thus, we encourage future studies to employ a qualitative research design to further unravel the heterogeneity of crowdfunding backers. In detail, it would be interesting to see how entrepreneurs are better advised to tailor their

crowdfunding campaigns to the expectations of a certain crowd than to pursue a strategy that tries to mobilize all backers.

References

Agrawal, A., Catalini, C., & Goldfarb, A. (2014). Some simple economics of crowdfunding. *Innovation Policy and the Economy, 14*(1), 63-97.

Agrawal, A., Catalini, C., & Goldfarb, A. (2015). Crowdfunding: Geography, social networks, and the timing of investment decisions. *Journal of Economics & Management Strategy, 24*(2), 253-274.

Agrawal, A., Catalini, C., & Goldfarb, A. (2016). Are syndicates the killer app of equity crowdfunding? *California Management Review, 58*(2), 111-124.

Ahl, H. (2006). Why research on women entrepreneurs needs new directions. *Entrepreneurship Theory and Practice, 30*(5), 595-621.

Ahlers, G. K., Cumming, D., Günther, C., & Schweizer, D. (2015). Signaling in equity crowdfunding. *Entrepreneurship Theory and Practice, 39*(4), 955-980.

Allison, T. H., Davis, B. C., Short, J. C., & Webb, J. W. (2015). Crowdfunding in a prosocial microlending environment: Examining the role of intrinsic versus extrinsic cues. *Entrepreneurship Theory and Practice, 39*(1), 53-73.

Allison, T. H., Davis, B. C., Webb, J. W., & Short, J. C. (2017). Persuasion in crowdfunding: An elaboration likelihood model of crowdfunding performance. *Journal of Business Venturing, 32*(6), 707-725.

Amabile, T. M. (2012). Componential theory of creativity. *Harvard Business School, 12*(96), 1-10.

Anglin, A. H., Short, J. C., Drover, W., Stevenson, R. M., McKenny, A. F., & Allison, T. H. (2018). The power of positivity? The influence of positive psychological capital language on crowdfunding performance. *Journal of Business Venturing, 33*(4), 470-492.

Anglin, A. H., Wolfe, M. T., Short, J. C., McKenny, A. F., & Pidduck, R. J. (2018). Narcissistic rhetoric and crowdfunding performance: A social role theory perspective. *Journal of Business Venturing, 33*(6), 780-812.

Ariffin, S. K., Mohan, T., & Goh, Y.-N. (2018). Influence of consumers' perceived risk on consumers' online purchase intention. *Journal of Research in Interactive Marketing*.

Asgari, A., & Mustapha, G. B. (2011). The influence of informal language learning environment (parents and home environment) on the vocabulary learning strategies. *English Language and Literature Studies, 1*(1), 7.

Assenova, V., Best, J., Cagney, M., Ellenoff, D., Karas, K., Moon, J., . . . Sorenson, O. (2016). The present and future of crowdfunding. *California Management Review, 58*(2), 125-135.

Auger, P., & Devinney, T. M. (2007). Do what consumers say matter? The misalignment of preferences with unconstrained ethical intentions. *Journal of Business Ethics, 76*(4), 361-383.

Auger, P., Devinney, T. M., Louviere, J. J., & Burke, P. F. (2008). Do social product features have value to consumers? *International Journal of Research in Marketing, 25*(3), 183-191.

Averbeck, J. M. (2010). Irony and language expectancy theory: Evaluations of expectancy violation outcomes. *Communication Studies, 61*(3), 356-372.

Azizi, S., & Javidani, M. (2010). Measuring e-shopping intention: An Iranian perspective. *African Journal of Business Management, 4*(13), 2668-2675.

Baldwin, C., & Von Hippel, E. (2011). Modeling a paradigm shift: From producer innovation to user and open collaborative innovation. *Organization Science, 22*(6), 1399-1417.

Behi, K., Agarwal, N., & Brem, A. (2020). An Analysis of a Crowdfunding System in North Africa Based on the Actor-Network Theory. *International Journal of Global Business and Competitiveness, 15*(1), 23-34.

Belavina, E., Marinesi, S., & Tsoukalas, G. (2020). Rethinking crowdfunding platform design: mechanisms to deter misconduct and improve efficiency. *Management Science, 66*(11), 4980-4997.

Belleflamme, P., Lambert, T., & Schwienbacher, A. (2013). Individual crowdfunding practices. *Venture Capital, 15*(4), 313-333.

Belleflamme, P., Lambert, T., & Schwienbacher, A. (2014). Crowdfunding: Tapping the right crowd. *Journal of Business Venturing, 29*(5), 585-609.

Benford, R. D. (1993). "You could be the hundredth monkey": Collective action frames and vocabularies of motive within the nuclear disarmament movement. *Sociological Quarterly, 34*(2), 195-216.

Benford, R. D., & Snow, D. A. (2000). Framing processes and social movements: An overview and assessment. *Annual Review of Sociology, 26*(1), 611-639.

Bennett, W. L. (2012). The personalization of politics: Political identity, social media, and changing patterns of participation. *The Annals of the American Academy of Political and Social Science, 644*(1), 20-39.

Berger, C. R., & Calabrese, R. J. (1974). Some explorations in initial interaction and beyond: Toward a developmental theory of interpersonal communication. *Human Communication Research, 1*(2), 99-112.

Biyani, P., Tsioutsiouliklis, K., & Blackmer, J. (2016). *"8 Amazing Secrets for Getting More Clicks": Detecting Clickbaits in News Streams Using Article Informality.* Paper presented at the Thirtieth AAAI Conference on Artificial Intelligence.

Block, J., Hornuf, L., & Moritz, A. (2018). Which updates during an equity crowdfunding campaign increase crowd participation? *Small Business Economics, 50*(1), 3-27.

Bonabeau, E. (2003). Don't trust your gut. *Harvard Business Review, 81*(5), 116-123, 130.

Bouncken, R. B., Komorek, M., & Kraus, S. (2015). Crowdfunding: The current state of research. *International Business & Economics Research Journal (IBER), 14*(3), 407-416.

Bretschneider, U., & Leimeister, J. M. (2017). Not just an ego-trip: Exploring backers' motivation for funding in incentive-based crowdfunding. *The Journal of Strategic Information Systems, 26*(4), 246-260.

Brickson, S. L. (2007). Organizational identity orientation: The genesis of the role of the firm and distinct forms of social value. *Academy of Management Review, 32*(3), 864-888.

Brooks, A. W., Huang, L., Kearney, S. W., & Murray, F. E. (2014). Investors prefer entrepreneurial ventures pitched by attractive men. *Proceedings of the National Academy of Sciences, 111*(12), 4427-4431.

Brush, C., Greene, P., Balachandra, L., & Davis, A. (2018). The gender gap in venture capital-progress, problems, and perspectives. *Venture Capital, 20*(2), 115-136.

Brush, C., Greene, P., Balachandra, L., Davis, A., & Blank, A. (2014). Women entrepreneurs 2014: bridging the gender gap in venture capital. *Arthur M. Blank Center for Entrepreneurship Babson College, 28*.

Burgoon, M., Denning, V. P., & Roberts, L. (2002). Language expectancy theory. *The persuasion handbook: Developments in theory and practice*, 117-136.

Burke, K. (1984). Attitudes Toward History. 1937. Berkeley: U of California P, 1984. *Language as Symbolic Action: Essays on Life, Literature, and Method*.

Burns, M. B., & Moffitt, K. C. (2014). Automated deception detection of 911 call transcripts. *Security Informatics, 3*(1), 8.

Buttice, V., Colombo, M. G., & Wright, M. (2017). Serial crowdfunding, social capital, and project success. *Entrepreneurship Theory and Practice, 41*(2), 183-207.

Calic, G., & Mosakowski, E. (2016). Kicking off social entrepreneurship: How a sustainability orientation influences crowdfunding success. *Journal of Management Studies, 53*(5), 738-767.

Carter, S., Anderson, S., & Shaw, E. (2001). Women's business ownership: A review of the academic, popular and internet literature.

Catlin, J. R., Luchs, M. G., & Phipps, M. (2017). Consumer perceptions of the social vs. environmental dimensions of sustainability. *Journal of Consumer Policy, 40*(3), 245-277.

Chan, H. F., Moy, N., Schaffner, M., & Torgler, B. (2019). The effects of money saliency and sustainability orientation on reward based crowdfunding success. *Journal of Business Research*.

Chan, R. C., & Parhankangas, A. (2017). Crowdfunding innovative ideas: How incremental and radical innovativeness influence funding outcomes. *Entrepreneurship Theory and Practice, 41*(2), 237-263.

Choi, S., & Ng, A. (2011). Environmental and economic dimensions of sustainability and price effects on consumer responses. *Journal of Business Ethics, 104*(2), 269-282.

Cholakova, M., & Clarysse, B. (2015). Does the possibility to make equity investments in crowdfunding projects crowd out reward–based investments? *Entrepreneurship Theory and Practice, 39*(1), 145-172.

Clark, C. (2008). The impact of entrepreneurs' oral 'pitch'presentation skills on business angels' initial screening investment decisions. *Venture Capital, 10*(3), 257-279.

Clarkson, M. E. (1995). A stakeholder framework for analyzing and evaluating corporate social performance. *Academy of Management Review, 20*(1), 92-117.

Coleman, S., Henry, C., Orser, B., Foss, L., & Welter, F. (2019). Policy support for women entrepreneurs' access to financial capital: Evidence from Canada, Germany, Ireland, Norway, and the United States. *Journal of Small Business Management, 57*, 296-322.

Colistra, R., & Duvall, K. (2017). Show me the money: Importance of crowdfunding factors on backers' decisions to financially support kickstarter campaigns. *Social Media+ Society, 3*(4), 2056305117736942.

Collins, L., & Pierrakis, Y. (2012). The venture crowd: crowdfunding equity investments into business. *Nesta*. Retrieved from https://eprints.kingston.ac.uk/id/eprint/29089/1/the_venture_crowd.pdf

Connelly, B. L., Certo, S. T., Ireland, R. D., & Reutzel, C. R. (2011). Signaling theory: A review and assessment. *Journal of Management, 37*(1), 39-67.

Cordova, A., Dolci, J., & Gianfrate, G. (2015). The determinants of crowdfunding success: evidence from technology projects. *Procedia-Social and Behavioral Sciences, 181*, 115-124. doi:10.1016/j.sbspro.2015.04.872

Cornelissen, J. P., & Clarke, J. S. (2010). Imagining and rationalizing opportunities: Inductive reasoning and the creation and justification of new ventures. *Academy of Management Review, 35*(4), 539-557.

Cornelissen, J. P., & Werner, M. D. (2014). Putting framing in perspective: A review of framing and frame analysis across the management and organizational literature. *Academy of Management Annals, 8*(1), 181-235.

Cosh, A., Cumming, D., & Hughes, A. (2009). Outside enterpreneurial capital. *The Economic Journal, 119*(540), 1494-1533.

Cotte, J., & Trudel, R. (2009). Socially conscious consumerism: A systematic review of the body of knowledge. *Network for Business Sustainability*.

Courtney, C., Dutta, S., & Li, Y. (2017). Resolving information asymmetry: Signaling, endorsement, and crowdfunding success. *Entrepreneurship Theory and Practice, 41*(2), 265-290.

Crane, A. (2001). Unpacking the ethical product. *Journal of Business Ethics, 30*(4), 361-373.

Crano, W. D., & Prislin, R. (2006). Attitudes and persuasion. *Annual Review of Psychology, 57*, 345-374.

Cumming, D. J., Leboeuf, G., & Schwienbacher, A. (2015). Crowdfunding models: Keep-it-all vs. all-or-nothing. *Financial Management*.

Cumming, D. J., Leboeuf, G., & Schwienbacher, A. (2017). Crowdfunding cleantech. *Energy Economics, 65*, 292-303.

Cunningham, C. (2017). *When does novelty pay?* Paper presented at the Academy of Management Proceedings.

Curtis, R. C., & Miller, K. (1986). Believing another likes or dislikes you: Behaviors making the beliefs come true. *Journal of Personality and Social Psychology, 51*(2), 284.

Dai, B. (2007). *The impact of online shopping experience on risk perceptions and online purchase intentions: the moderating role of product category and gender.*

Davidson, R., & Poor, N. (2016). Factors for success in repeat crowdfunding: why sugar daddies are only good for Bar-Mitzvahs. *Information, Communication & Society, 19*(1), 127-139.

Davidsson, P., Delmar, F., & Wiklund, J. (2006). Entrepreneurship as growth; growth as entrepreneurship. *Entrepreneurship and the Growth of Firms, 1*(2), 21-38.

Davis, B. C., Hmieleski, K. M., Webb, J. W., & Coombs, J. E. (2017). Funders' positive affective reactions to entrepreneurs' crowdfunding pitches: The influence of perceived product creativity and entrepreneurial passion. *Journal of Business Venturing, 32*(1), 90-106.

Davis, B. C., & Webb, J. W. (2012). Crowdfunding of entrepreneurial ventures: Getting the right combination of signals. *Frontiers of Entrepreneurship Research*.

Defazio, D., Franzoni, C., & Rossi-Lamastra, C. (2020). How Pro-social Framing Affects the Success of Crowdfunding Projects: The Role of Emphasis and Information Crowdedness. *Journal of Business Ethics*, 1-22.

del Mar Fuentes-Fuentes, M., Bojica, A. M., Ruiz-Arroyo, M., & Welter, F. (2017). Innovativeness and business relationships in women-owned firms: The role of gender stereotypes. *Canadian Journal of Administrative Sciences/Revue Canadienne des Sciences de l'Administration, 34*(1), 63-76.

Drover, W., Busenitz, L., Matusik, S., Townsend, D., Anglin, A., & Dushnitsky, G. (2017). A review and road map of entrepreneurial equity financing research: venture capital, corporate venture capital, angel investment, crowdfunding, and accelerators. *Journal of Management, 43*(6), 1820-1853.

Dutta, S., & Folta, T. B. (2016). A comparison of the effect of angels and venture capitalists on innovation and value creation. *Journal of Business Venturing, 31*(1), 39-54.

Edelman, L. F., Donnelly, R., Manolova, T., & Brush, C. G. (2018). Gender stereotypes in the angel investment process. *International Journal of Gender and Entrepreneurship*.

Entman, R. M. (1993). Framing: Toward clarification of a fractured paradigm.

Epstein, M. J. (2008). *Making sustainability work: Best practices in managing and measuring corporate social, environmental, and economic impacts*. San Francisco: Berrett-Koehler Publishers.

Farhoud, M., Shah, S., Stenholm, P., Kibler, E., Renko, M., & Terjesen, S. (2021). Social enterprise crowdfunding in an acute crisis. *Journal of Business Venturing Insights, 15*, e00211.

Fassin, Y., & Drover, W. (2017). Ethics in entrepreneurial finance: Exploring problems in venture partner entry and exit. *Journal of Business Ethics, 140*(4), 649-672.

Fisher, G., Kotha, S., & Lahiri, A. (2016). Changing with the times: An integrated view of identity, legitimacy, and new venture life cycles. *Academy of Management Review, 41*(3), 383-409.

Fisk, R. P., Patrício, L., Ordanini, A., Miceli, L., Pizzetti, M., & Parasuraman, A. (2011). Crowd-funding: transforming customers into investors through innovative service platforms. *Journal of Service Management*.

Fiske, S. T., & Taylor, S. E. (1991). *Social cognition*: Mcgraw-Hill Book Company.

Fontana, W. M. S., & Ordóñez, E. L. B. T. (2020). Signaling and success in campaigns of Latin-American crowdfunding. *Journal of Administration Sciences and Economics, 10*, 19.

Forsythe, S., Liu, C., Shannon, D., & Gardner, L. C. (2006). Development of a scale to measure the perceived benefits and risks of online shopping. *Journal of interactive marketing, 20*(2), 55-75.

Friestad, M., & Wright, P. (1994). The persuasion knowledge model: How people cope with persuasion attempts. *Journal of Consumer Research, 21*(1), 1-31.

Frydrych, D., Bock, A. J., & Kinder, T. (2016). Creating project legitimacy–the role of entrepreneurial narrative in reward-based crowdfunding. *International Perspectives on Crowdfunding: Positive, Normative and Critical Theory*, 99-128.

Gafni, H., Marom, D., & Sade, O. (2019). Are the life and death of an early-stage venture indeed in the power of the tongue? Lessons from online crowdfunding pitches. *Strategic Entrepreneurship Journal, 13*(1), 3-23.

Galak, J., Small, D., & Stephen, A. T. (2011). Microfinance decision making: A field study of prosocial lending. *Journal of Marketing Research, 48*(SPL), S130-S137.

Gamble, J. R., Brennan, M., & McAdam, R. (2017). A rewarding experience? Exploring how crowdfunding is affecting music industry business models. *Journal of Business Research, 70*, 25-36.

Garud, R., Schildt, H. A., & Lant, T. K. (2014). Entrepreneurial storytelling, future expectations, and the paradox of legitimacy. *Organization Science, 25*(5), 1479-1492.

Gavetti, G., & Levinthal, D. (2000). Looking forward and looking backward: Cognitive and experiential search. *Administrative Science Quarterly, 45*(1), 113-137.

Ghatak, M., Morelli, M., & Sjöström, T. (2007). Entrepreneurial talent, occupational choice, and trickle up policies. *Journal of Economic Theory, 137*(1), 27-48.
Giorgi, S. (2017). The mind and heart of resonance: The role of cognition and emotions in frame effectiveness. *Journal of Management Studies, 54*(5), 711-738.
Giorgi, S., & Weber, K. (2015). Marks of distinction: Framing and audience appreciation in the context of investment advice. *Administrative Science Quarterly, 60*(2), 333-367.
Giudici, G., Guerini, M., & Rossi Lamastra, C. (2013). Why crowdfunding projects can succeed: the role of proponents' individual and territorial social capital. *SSRN Scholarly Paper No. ID 2255944*.
Goffman, E. (1974). *Frame analysis: An essay on the organization of experience*: Harvard University Press.
Greenberg, J., & Mollick, E. (2015). *Leaning in or leaning on? Gender, homophily, and activism in crowdfunding.* Paper presented at the Academy of Management Proceedings.
Gupta, V. K., Goktan, A. B., & Gunay, G. (2014). Gender differences in evaluation of new business opportunity: A stereotype threat perspective. *Journal of Business Venturing, 29*(2), 273-288.
Guzman, J., & Kacperczyk, A. O. (2019). Gender gap in entrepreneurship. *Research Policy, 48*(7), 1666-1680.
Hahn, T., Preuss, L., Pinkse, J., & Figge, F. (2014). Cognitive frames in corporate sustainability: Managerial sensemaking with paradoxical and business case frames. *Academy of Management Review, 39*(4), 463-487.
Hakenes, H., & Schlegel, F. (2014). Exploiting the Financial Wisdom of the Crowd-Crowdfunding as a Tool to Aggregate Vague Information. *SSRN Scholarly Paper No. ID 2475025*.
Hall, J. K., Daneke, G. A., & Lenox, M. J. (2010). Sustainable development and entrepreneurship: Past contributions and future directions. *Journal of Business Venturing, 25*(5), 439-448.
Harrison, R., Newholm, T., & Shaw, D. (2005). *The ethical consumer*: Sage.
Held, M. (2001). Sustainable development from a temporal perspective. *Time & Society, 10*(2-3), 351-366.
Henderson, R., & Robertson, M. (2000). Who wants to be an entrepreneur? Young adult attitudes to entrepreneurship as a career. *Career development international, 5*(6), 279-287.
Hennessey, B. A., & Amabile, T. M. (2010). Creativity. *Annual Review of Psychology, 61*(1), 569-598. doi:10.1146/annurev.psych.093008.100416
Hertog, J. K., & McLeod, D. M. (2001). A multiperspectival approach to framing analysis: A field guide *Framing public life* (pp. 157-178): Routledge.
Hewlett, S. A., Marshall, M., Sherbin, L., & Gonsalves, T. (2013). *Innovation, diversity and market growth*: Center for Talent Innovation.
Heylighen, F., & Dewaele, J.-M. (1999). Formality of language: definition, measurement and behavioral determinants. *Interner Bericht, Center "Leo Apostel", Vrije Universiteit Brüssel, 4*.
Hörisch, J. (2015). Crowdfunding for environmental ventures: an empirical analysis of the influence of environmental orientation on the success of crowdfunding initiatives. *Journal of Cleaner Production, 107*, 636-645.
Horvát, E.-Á., Wachs, J., Wang, R., & Hannák, A. (2018). *The role of novelty in securing investors for equity crowdfunding campaigns.* Paper presented at the Sixth AAAI Conference on Human Computation and Crowdsourcing.
Hosta, M., & Zabkar, V. (2020). Antecedents of Environmentally and Socially Responsible Sustainable Consumer Behavior. *Journal of Business Ethics*, 1-21.
Huang, S., Pickernell, D., Battisti, M., & Nguyen, T. (2021). Signalling entrepreneurs' credibility and project quality for crowdfunding success: cases from the Kickstarter and Indiegogo environments. *Small Business Economics*, 1-21.
Hunt, S. A., Benford, R. D., & Snow, D. A. (1994). Identity fields: Framing processes and the social construction of movement identities. *New Social Movements: From Ideology to Identity, 185*, 208.
Hyytinen, A., Pajarinen, M., & Rouvinen, P. (2015). Does innovativeness reduce startup survival rates? *Journal of Business Venturing, 30*(4), 564-581.

ICOPartners. (2022). Kickstarter & Games in 2020. Retrieved from https://medium.com/icopartners/kickstarter-in-2020-for-games-70d26b5cba73
Ivanov, V., & Knyazeva, A. (2017). US securities-based crowdfunding under Title III of the JOBS Act. *DERA White paper*.
Jennings, J. E., Jennings, P. D., & Greenwood, R. (2009). Novelty and new firm performance: The case of employment systems in knowledge-intensive service organizations. *Journal of Business Venturing, 24*(4), 338-359.
Jones, C., & Livne-Tarandach, R. (2008). Designing a frame: Rhetorical strategies of architects. *Journal of Organizational Behavior: The International Journal of Industrial, Occupational and Organizational Psychology and Behavior, 29*(8), 1075-1099.
Kaartemo, V. (2017). The elements of a successful crowdfunding campaign: a systematic literature review of crowdfunding performance. *International Review of Entrepreneurship, 15*(3), 291-318.
Kaplan, S. (2008). Framing contests: Strategy making under uncertainty. *Organization Science, 19*(5), 729-752.
Kennedy, P. (2003). A guide to Econometrics (Vol. 5). Cambridge, Massachussets: The MIT Press.
Kennedy, P. (2008). *A guide to econometrics*: John Wiley & Sons.
Kickstarter. (2020a). Kickstarter Creator Handbook: Funding. Retrieved from https://www.kickstarter.com/help/handbook/funding
Kickstarter. (2020b). Kickstarter Creator Handbook: Telling Your Story. Retrieved from https://www.kickstarter.com/help/handbook/your_story
Kickstarter. (2020c). Kickstarter: About us. Retrieved from https://www.kickstarter.com/about
Kickstarter. (2022a). How Kickstarter Creators Are Coping with the Coronavirus Retrieved from https://www.kickstarter.com/blog/how-kickstarter-creators-are-coping-with-the-coronavirus
Kickstarter. (2022b). Kickstarter Blog. Retrieved from https://www.kickstarter.com/blog
Kickstarter. (2022c). Kickstarter Most Funded. Retrieved from https://www.kickstarter.com/discover/most-funded
Kickstarter. (2022d). Kickstarter Stats.Retrieved from https://www.kickstarter.com/help/stats?ref=footer
Kim, P. H., Buffart, M., & Croidieu, G. (2016). TMI: Signaling credible claims in crowdfunding campaign narratives. *Group & Organization Management, 41*(6), 717-750.
Kivetz, R., & Simonson, I. (2000). The effects of incomplete information on consumer choice. *Journal of Marketing Research, 37*(4), 427-448.
Krippendorff, K. (2018). *Content analysis: An introduction to its methodology*: Sage publications.
Kromidha, E., & Robson, P. (2016). Social identity and signalling success factors in online crowdfunding. *Entrepreneurship & Regional Development, 28*(9-10), 605-629.
Kunz, M. M., Bretschneider, U., Erler, M., & Leimeister, J. M. (2017). An empirical investigation of signaling in reward-based crowdfunding. *Electronic Commerce Research, 17*(3), 425-461.
Kuppuswamy, V., & Bayus, B. L. (2018). Crowdfunding creative ideas: The dynamics of project backers *The economics of crowdfunding* (pp. 151-182): Springer.
Kuschel, K. (2019). Women founders in the technology industry: The startup-relatedness of the decision to become a mother. *Administrative sciences, 9*(2), 30.
Lagazio, C., & Querci, F. (2018). Exploring the multi-sided nature of crowdfunding campaign success. *Journal of Business Research, 90*, 318-324.
Lambert, T., & Schwienbacher, A. (2010). An empirical analysis of crowdfunding. *Social Science Research Network, 1578175*(1), 23.
Lehner, O. M. (2013). Crowdfunding social ventures: a model and research agenda. *Venture Capital, 15*(4), 289-311.
Levin, I. P., Schneider, S. L., & Gaeth, G. J. (1998). All frames are not created equal: A typology and critical analysis of framing effects. *Organizational Behavior and Human Decision Processes, 76*(2), 149-188.
Levitan, S. I., Maredia, A., & Hirschberg, J. (2018). *Linguistic cues to deception and perceived deception in interview dialogues.* Paper presented at the Proceedings of the 2018

Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies, Volume 1 (Long Papers).

Lin, Y.-T., Wang, W., & Doong, H.-S. (2019). Is talking about the future a curse or a blessing? The effects of future-focused message framing on fundraising performance. *IEEE Transactions on Engineering Management*.

Loewenstein, J., & Mueller, J. (2016). Implicit theories of creative ideas: How culture guides creativity assessments. *Academy of Management Discoveries, 2*(4), 320-348.

Loewenstein, J., Ocasio, W., & Jones, C. (2012). Vocabularies and vocabulary structure: A new approach linking categories, practices, and institutions. *Academy of Management Annals, 6*(1), 41-86.

Long, M. A., & Murray, D. L. (2013). Ethical consumption, values convergence/divergence and community development. *Journal of Agricultural and Environmental Ethics, 26*(2), 351-375.

Low, M. B., & MacMillan, I. C. (1988). Entrepreneurship: Past research and future challenges. *Journal of Management, 14*(2), 139-161.

Maignan, I., & Ferrell, O. (2004). Corporate social responsibility and marketing: An integrative framework. *Journal of the Academy of Marketing Science, 32*(1), 3-19.

Mairesse, F., Walker, M. A., Mehl, M. R., & Moore, R. K. (2007). Using linguistic cues for the automatic recognition of personality in conversation and text. *Journal of Artificial Intelligence Research, 30*, 457-500.

Manning, S., & Bejarano, T. A. (2017). Convincing the crowd: Entrepreneurial storytelling in crowdfunding campaigns. *Strategic Organization, 15*(2), 194-219.

Manning, W. G., Basu, A., & Mullahy, J. (2005). Generalized modeling approaches to risk adjustment of skewed outcomes data. *Journal of Health Economics, 24*(3), 465-488.

Maon, F., Lindgreen, A., & Swaen, V. (2008). Thinking of the organization as a system: The role of managerial perceptions in developing a corporate social responsibility strategic agenda. *Systems Research and Behavioral Science: The Official Journal of the International Federation for Systems Research, 25*(3), 413-426.

Marin, L., & Ruiz, S. (2007). "I need you too!" Corporate identity attractiveness for consumers and the role of social responsibility. *Journal of Business Ethics, 71*(3), 245-260.

Marom, D., Robb, A., & Sade, O. (2016). Gender dynamics in crowdfunding (Kickstarter): Evidence on entrepreneurs, investors, deals and taste-based discrimination. *SSRN Scholarly Paper No. ID 2442954*.

Martens, M. L., Jennings, J. E., & Jennings, P. D. (2007). Do the stories they tell get them the money they need? The role of entrepreneurial narratives in resource acquisition. *Academy of Management Journal, 50*(5), 1107-1132.

McKenny, A. F., Aguinis, H., Short, J. C., & Anglin, A. H. (2018). What doesn't get measured does exist: Improving the accuracy of computer-aided text analysis. *Journal of Management, 44*(7), 2909-2933.

McKenny, A. F., Allison, T. H., Ketchen Jr, D. J., Short, J. C., & Ireland, R. D. (2017). How should crowdfunding research evolve? A survey of the entrepreneurship theory and practice editorial board. *Entrepreneurship Theory and Practice, 41*(2), 291-304.

McKenny, A. F., Short, J. C., & Newman, S. M. (2012). CAT scanner (version 1.0) [software]. Retrieved from http://www.amckenny.com/CATScanner/

Meyer, R. J. (1981). A model of multiattribute judgments under attribute uncertainty and informational constraint. *Journal of Marketing Research, 18*(4), 428-441.

Micheletti, M. (2003). Why political consumerism? *Political virtue and shopping* (pp. 1-36): Springer.

Miniard, P. W., Bhatla, S., Lord, K. R., Dickson, P. R., & Unnava, H. R. (1991). Picture-based persuasion processes and the moderating role of involvement. *Journal of Consumer Research, 18*(1), 92-107.

Mollick, E. (2013). Swept away by the crowd? Crowdfunding, venture capital, and the selection of entrepreneurs. *Venture Capital, and the Selection of Entrepreneurs (March 25, 2013)*.

Mollick, E. (2014). The dynamics of crowdfunding: An exploratory study. *Journal of Business Venturing, 29*(1), 1-16.

Mollick, E., & Kuppuswamy, V. (2014). After the campaign: Outcomes of crowdfunding. *UNC Kenan-Flagler Research Paper*(2376997).
Mollick, E., & Nanda, R. (2016). Wisdom or madness? Comparing crowds with expert evaluation in funding the arts. *Management Science, 62*(6), 1533-1553.
Mollick, E., & Robb, A. (2016). Democratizing innovation and capital access: The role of crowdfunding. *California Management Review, 58*(2), 72-87.
Moritz, A., & Block, J. H. (2014). Crowdfunding und Crowdinvesting: State-of-the-Art der wissenschaftlichen Literatur (Crowdfunding and crowdinvesting: A review of the literature). *Zeitschrift für KMU und Entrepreneurship, 62*(1), 57-89.
Moritz, A., & Block, J. H. (2016). Crowdfunding: A literature review and research directions. *Crowdfunding in Europe*, 25-53.
Morris, R. (1994). Computerized content analysis in management research: A demonstration of advantages & limitations. *Journal of Management, 20*(4), 903-931.
Moss, T. W., Renko, M., Block, E., & Meyskens, M. (2018). Funding the story of hybrid ventures: Crowdfunder lending preferences and linguistic hybridity. *Journal of Business Venturing, 33*(5), 643-659.
Mumford, M. D., & Gustafson, S. B. (1988). Creativity syndrome: Integration, application, and innovation. *Psychological Bulletin, 103*(1), 27.
Navis, C., & Glynn, M. A. (2010). How new market categories emerge: Temporal dynamics of legitimacy, identity, and entrepreneurship in satellite radio, 1990–2005. *Administrative Science Quarterly, 55*(3), 439-471.
Nielsen, K. R. (2018). Crowdfunding through a partial organization lens–The co-dependent organization. *European Management Journal, 36*(6), 695-707.
Nielsen, K. R., & Binder, J. K. (2020). I Am What I Pledge: The Importance of Value Alignment for Mobilizing Backers in Reward-Based Crowdfunding. *Entrepreneurship Theory and Practice*, 1042258720929888.
O'brien, R. M. (2007). A caution regarding rules of thumb for variance inflation factors. *Quality & quantity, 41*(5), 673-690.
Olsen, M. C., Slotegraaf, R. J., & Chandukala, S. R. (2014). Green claims and message frames: how green new products change brand attitude. *Journal of Marketing, 78*(5), 119-137.
Pan, L., Li, X., Chen, J., & Chen, T. (2020). Sounds novel or familiar? Entrepreneurs' framing strategy in the venture capital market. *Journal of Business Venturing, 35*(2), 105930.
Parhankangas, A., & Ehrlich, M. (2014). How entrepreneurs seduce business angels: An impression management approach. *Journal of Business Venturing, 29*(4), 543-564.
Parhankangas, A., & Renko, M. (2017). Linguistic style and crowdfunding success among social and commercial entrepreneurs. *Journal of Business Venturing, 32*(2), 215-236.
Pencle, N., & Mălăescu, I. (2016). What's in the words? Development and validation of a multidimensional dictionary for CSR and application using prospectuses. *Journal of Emerging Technologies in Accounting, 13*(2), 109-127.
Peng, L., Cui, G., Bao, Z., & Liu, S. (2021). Speaking the same language: the power of words in crowdfunding success and failure. *Marketing Letters*, 1-13.
Pennebaker, J. W., Boyd, R. L., Jordan, K., & Blackburn, K. (2015). *The Development and Psychometric Properties of LIWC2015*. Retrieved from
Perrini, F. (2006). *Social entrepreneurship domain: Setting boundaries*. Cheltenham: Edward Elger Publishing Limited.
Prescott-Allen, R. (2001). *The wellbeing of nations*: Island Press.
Ray, S., & Cardozo, R. (1996). *Sensitivity and creativity in entrepreneurial opportunity recognition: a framework for empirical investigation.* Paper presented at the Sixth Global Entrepreneurship Research Conference, Imperial College, London.
Rindova, V., Barry, D., & Ketchen Jr, D. J. (2009). Entrepreneuring as emancipation. *Academy of Management Review, 34*(3), 477-491.
Robb, A., & Coleman, S. (2009). Characteristics of new firms: A comparison by gender.
Rubin, V. L., Liddy, E. D., & Kando, N. (2006). Certainty identification in texts: Categorization model and manual tagging results *Computing Attitude and Affect in Text: Theory and Applications* (pp. 61-76): Springer.

Salge, T. O., Antons, D., Barrett, M., Kohli, R., Oborn, E., & Polykarpou, S. (2022). How IT investments help hospitals gain and sustain reputation in the media: the role of signaling and framing. *Information Systems Research*.

Santos, F. M., & Eisenhardt, K. M. (2009). Constructing markets and shaping boundaries: Entrepreneurial power in nascent fields. *Academy of Management Journal, 52*(4), 643-671.

Scheaf, D. J., Davis, B. C., Webb, J. W., Coombs, J. E., Borns, J., & Holloway, G. (2018). Signals' flexibility and interaction with visual cues: Insights from crowdfunding. *Journal of Business Venturing, 33*(6), 720-741. doi:10.1016/j.jbusvent.2018.04.007

Schumpeter, J. A. (1943). *Capitalism, socialism and democracy*: routledge.

Schwartz, M. S., & Carroll, A. B. (2008). Integrating and unifying competing and complementary frameworks: The search for a common core in the business and society field. *Business & Society, 47*(2), 148-186.

Schwienbacher, A., & Larralde, B. (2010). Crowdfunding of small entrepreneurial ventures. *The Oxford Handbook of Entrepreneurial Finance*.

Schwittay, A. (2019). Digital mediations of everyday humanitarianism: the case of Kiva. org. *Third World Quarterly, 40*(10), 1921-1938.

Sen, S., & Bhattacharya, C. B. (2001). Does doing good always lead to doing better? Consumer reactions to corporate social responsibility. *Journal of Marketing Research, 38*(2), 225-243.

Sewaid, A., Garcia-Cestona, M., & Silaghi, F. (2021). Resolving information asymmetries in financing new product development: The case of reward-based crowdfunding. *Research Policy, 50*(10), 104345.

Shepherd, D. A., & Patzelt, H. (2011). The new field of sustainable entrepreneurship: Studying entrepreneurial action linking “what is to be sustained” with “what is to be developed”. *Entrepreneurship Theory and Practice, 35*(1), 137-163.

Short, J. C., McKenny, A. F., & Reid, S. W. (2018). More than words? Computer-aided text analysis in organizational behavior and psychology research. *Annual Review of Organizational Psychology and Organizational Behavior, 5*, 415-435.

Simon, H. A. (1985). What we know about the creative process. *Frontiers in Creative and Innovative Management, 4*, 3-22.

Singh, S. (2006). Cultural differences in, and influences on, consumers' propensity to adopt innovations. *International Marketing Review*.

Sixt, E. (2014). *Schwarmökonomie und Crowdfunding: Webbasierte Finanzierungssysteme im Rahmen realwirtschaftlicher Bedingungen*: Springer-Verlag.

Skirnevskiy, V., Bendig, D., & Brettel, M. (2017). The influence of internal social capital on serial creators’ success in crowdfunding. *Entrepreneurship Theory and Practice, 41*(2), 209-236.

Slawinski, N., & Bansal, P. (2012). A matter of time: The temporal perspectives of organizational responses to climate change. *Organization Studies, 33*(11), 1537-1563.

Smith, C. N. (1990). *Morality and the market: consumer pressure for corporate accountability*: London: Routledge.

Snow, D. A. (2004). Framing processes, ideology, and discursive fields. *The Blackwell Companion to Social Movements, 1*, 380-412.

Snow, D. A. (2008). Elaborating the discursive contexts of framing: Discursive fields and spaces. *Studies in Symbolic Interaction, 30*, 3-28.

Snow, D. A., & Benford, R. D. (1988). Ideology, frame resonance, and participant mobilization. *International Social Movement Research, 1*(1), 197-217.

Snow, D. A., Rochford Jr, E. B., Worden, S. K., & Benford, R. D. (1986). Frame alignment processes, micromobilization, and movement participation. *American Sociological Review*, 464-481.

Sohl, J. (2015). The angel investor market in 2014: A market correction in deal size.

Soltanpanah, H., Shafe, R., & Mirani, V. (2012). A review of the literature of perceived risk and identifying its various facets in e-commerce by customers: Focusing on developing countries. *African Journal of Business Management, 6*(8), 2888-2896.

Spence, M. (1978). Job market signaling *Uncertainty in Economics* (pp. 281-306): Elsevier.

Stanko, M. A., & Henard, D. H. (2016). How crowdfunding influences innovation. *MIT Sloan Management Review, 57*(3), 15.
Stanko, M. A., & Henard, D. H. (2017). Toward a better understanding of crowdfunding, openness and the consequences for innovation. *Research Policy, 46*(4), 784-798.
Steigenberger, N., & Wilhelm, H. (2018). Extending signaling theory to rhetorical signals: Evidence from crowdfunding. *Organization Science, 29*(3), 529-546.
Thies, F., Wessel, M., & Benlian, A. (2016). Effects of social interaction dynamics on platforms. *Journal of Management Information Systems, 33*(3), 843-873.
Ucbasaran, D., Westhead, P., & Wright, M. (2009). The extent and nature of opportunity identification by experienced entrepreneurs. *Journal of Business Venturing, 24*(2), 99-115.
Vasileiadou, E., Huijben, J., & Raven, R. (2016). Three is a crowd? Exploring the potential of crowdfunding for renewable energy in the Netherlands. *Journal of Cleaner Production, 128*, 142-155.
Verheul, I., Uhlaner, L., & Thurik, R. (2005). Business accomplishments, gender and entrepreneurial self-image. *Journal of Business Venturing, 20*(4), 483-518.
Vismara, S. (2018). Signaling to overcome inefficiencies in crowdfunding markets *The economics of crowdfunding* (pp. 29-56): Springer.
Vismara, S. (2019). Sustainability in equity crowdfunding. *Technological Forecasting and Social Change, 141*, 98-106.
Von Hippel, E., De Jong, J. P., & Flowers, S. (2012). Comparing business and household sector innovation in consumer products: findings from a representative study in the United Kingdom. *Management Science, 58*(9), 1669-1681.
von Selasinsky, C., & Lutz, E. (2021). The Effects of Pro-Social and Pro-Environmental Orientation on Crowdfunding Performance. *Sustainability, 13*(11), 6064.
Walsh, J. P. (1995). Managerial and organizational cognition: Notes from a trip down memory lane. *Organization Science, 6*(3), 280-321.
Wang, N., Li, Q., Liang, H., Ye, T., & Ge, S. (2018). Understanding the importance of interaction between creators and backers in crowdfunding success. *Electronic Commerce Research and Applications, 27*, 106-117.
Wei, Y. M., Hong, J., & Tellis, G. J. (2021). Machine Learning for Creativity: Using Similarity Networks to Design Better Crowdfunding Projects. *Journal of Marketing*, 00222429211005481.
White, K., MacDonnell, R., & Ellard, J. H. (2012). Belief in a just world: Consumer intentions and behaviors toward ethical products. *Journal of Marketing, 76*(1), 103-118.
Willard, B. (2012). *The new sustainability advantage: seven business case benefits of a triple bottom line*: New Society Publishers.
Wry, T., Lounsbury, M., & Glynn, M. A. (2011). Legitimating nascent collective identities: Coordinating cultural entrepreneurship. *Organization Science, 22*(2), 449-463.
Xu, A., Yang, X., Rao, H., Fu, W.-T., Huang, S.-W., & Bailey, B. P. (2014). *Show me the money! An analysis of project updates during crowdfunding campaigns.* Paper presented at the Proceedings of the SIGCHI conference on human factors in computing systems.
Xu, B., Zheng, H., Xu, Y., & Wang, T. (2016). Configurational paths to sponsor satisfaction in crowdfunding. *Journal of Business Research, 69*(2), 915-927.
Yang, S. C., Hung, W. C., Sung, K., & Farn, C. K. (2006). Investigating initial trust toward e-tailers from the elaboration likelihood model perspective. *Psychology & Marketing, 23*(5), 429-445.
Zafar, S., Waddingham, J., Zachary, M., & Short, J. (2021). Search behavior and decision confidence in equity crowdfunding: an information search process model perspective. *Journal of Small Business Management*, 1-34.
Zhang, H., & Chen, W. (2019). Crowdfunding technological innovations: Interaction between consumer benefits and rewards. *Technovation, 84*, 11-20.
Zhang, S., Kwok, R. C.-W., & Liu, Z. (2017). *Reward-based crowdfunding: a study of online investment behaviors among China funders.* Paper presented at the 2017 2nd ACSS International Conference on the Social Sciences and Teaching Research (ACSS-SSTR 2017).

Zhao, L., & Ryu, S. (2020). Reward-based crowdfunding research and practice. *Advances in crowdfunding*, 119-143.

Zheng, H., Li, D., Wu, J., & Xu, Y. (2014). The role of multidimensional social capital in crowdfunding: A comparative study in China and US. *Information & Management, 51*(4), 488-496.

Zheng, L., Favier, M., Huang, P., & Coat, F. (2012). Chinese consumer perceived risk and risk relievers in e-shopping for clothing. *Journal of Electronic Commerce Research, 13*(3), 255.

Zhou, L., Burgoon, J. K., Nunamaker, J. F., & Twitchell, D. (2004). Automating linguistics-based cues for detecting deception in text-based asynchronous computer-mediated communications. *Group Decision and Negotiation, 13*(1), 81-106.

Ziegler, T., Shneor, R., Wenzlaff, K., Suresh, K., Paes, F. F. d. C., Mammadova, L., Wang, B. (2021). The 2nd Global Alternative Finance Market Benchmarking Report.

Ziegler, T., Shneor, R., Wenzlaff, K., Wang, B., Kim, J., Paes, F. F. d. C., Adams, N. (2020). The global alternative finance market benchmarking report. *Available at SSRN 3771509*.

Ziegler, T., Shneor, R., & Zhang, B. Z. (2020). The global status of the crowdfunding industry *Advances in crowdfunding* (pp. 43-61): Palgrave Macmillan, Cham.

Ziman, K., Heusser, A. C., Fitzpatrick, P. C., Field, C. E., & Manning, J. R. (2018). Is automatic speech-to-text transcription ready for use in psychological experiments? *Behavior Research Methods, 50*(6), 2597-2605.