The Impact of Portraits, Product Pricing, and Voice Emotion on Crowdfunding Success Rates Across Different Genders

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Abstract: In recent years, crowdfunding as an internet entrepreneurial method has gradually entered the public's attention. Crowdfunding platforms have witnessed significant development across various sectors, including charity, cultural creativity, and technological innovation. This study explores the impact of gender, visibility, product pricing, and voice emotion on crowdfunding success rates within the American platform Kickstarter. Emphasis is placed on understanding how gender factors influence crowdfunding in different contexts, aiming to assist project founders to enhance their project success rates. The study analyzes success rates of founders of different genders in various situations. The findings under face visibility conditions, the success rate of male funders is significantly lower than the mean success rate of female funders. Crowdfunding success rates are generally higher when product prices exceed the average, with female funders consistently achieving higher success rates than male funders in this scenario. In crowdfunding video voiceovers, for founders of different genders, the impact of energy levels in crowdfunding videos on success rates is not significant. However, higher upset values lead to a greater success rate, with a similar increase for founders of different genders. The study concludes that in crowdfunding videos where faces are shown, female fundraisers significantly enhance success rates. Higher crowdfunding project prices lead to higher success rates, and female fundraisers are more likely to succeed in these projects. While the degree of discouragement in voiceovers significantly influences projects, gender is not a crucial influencing factor.

Keywords: Crowdfunding success rate, gender differences, founder's gender, product pricing, voice emotion

1. Introduction

In recent years, internet entrepreneurship has become a prevailing trend, with new creative ideas emerging constantly. Crowdfunding platforms, in particular, serve as cradles for projects lacking financial support. Originating in the United States, crowdfunding is an emerging business model where the general public makes small-scale investments in projects initiated by businesses or individuals through the internet. Major platforms such as Kickstarter, Crowdcube, and Indiegogo have matured in their development. Supporters on crowdfunding platforms are the platform's visitors, and aside from the project's content itself, how to attract and gain their financial support is a primary concern for every project founder. This study aims to use actual data as an example to help project founders on crowdfunding platforms enhance their project success rates.

Previous research has collected data from the Kickstarter platform regarding portraits and crowdfunding success rates. However, there hasn't been a specific analysis of the dataset regarding portrait gender, pricing, voice emotion, and success rates. Therefore, based on previous data sets, this study focuses on the impact of portrait gender, product pricing, and voice emotion on crowdfunding success rates.

Crowdfunding is an emerging business model where the general public makes small-scale investments in projects initiated by businesses or individuals through the internet[1]. The presence of portraits in crowdfunding project videos has been shown to enhance the crowdfunding success rate[2]. Considering the current challenge of discerning the authenticity of information in the online environment[3], videos featuring real individuals help overcome this dilemma. Previous research suggests that there is no gender difference in obtaining financing for male and female entrepreneurs[4]. The decisive factor for crowdfunding success remains the project itself rather than the identity of the founder[5]. Additionally, a study has found that backers exhibit a tendency to support entrepreneurs of their own gender in Kickstarter, and there is taste-based discrimination among male backers. However, women set comparable funding goals to men and achieve higher success rates, even when considering project categories and funding goals[6]. Existing studies indicate that the presence of portraits in crowdfunding project videos enhances the success rate, and there is little gender difference in obtaining financing for male and female entrepreneurs on crowdfunding platforms[7]. However, there is a lack of research on the impact of portrait gender, crowdfunding product pricing, and voice emotion on success rates.

In today's society, where first impressions matter, the attractiveness of the initial encounter is crucial for crowdfunding projects[8]. The study capturing the social and environmental orientations provides a deeper understanding of their impact on crowdfunding performance[9]. The question arises: does the appearance of male and female founders affect crowdfunding success rates differently?

Research shows that in male investors with lower returns, overconfidence is more pronounced[10]. Based on financial risk, functional risk, and psychological risk in internet finance[11], will the confidence and level of discouragement reflected in product pricing and voice emotion reactions impact success rates? Some studies have demonstrated that the consistency of voice and video emotions can increase crowdfunding project support rates[12]. Building upon this, the focus of this study is on the effect of portrait gender in enhancing crowdfunding success rates and the impact of product pricing and voice emotion for founders of different genders on success rates.

2. Empirical Testing

Data Set Introduction

This research utilizes data from the literature "Video mining: Measuring visual information using automatic methods," sourced from sample data on the U.S. Kickstarter platform between April 2009 and December 2015. A total of 6,958 crowdfunding projects were analyzed, excluding projects with unclear founder gender and those lacking crowdfunding videos. Among the cases with clear gender and crowdfunding videos, there were 2,811 instances, including 439 female founders and 2,372 male founders. The dataset encompasses project outcomes (success or failure), investor gender, crowdfunding project product pricing, whether faces are shown in crowdfunding videos, and voice emotions in crowdfunding videos (energy, discouragement, anger, satisfaction), among other variables.

Due to the global prevalence of the COVID-19 pandemic from 2019 to 2022, various industries experienced different levels of impact. For potential supporters, pandemic-induced unemployment and economic downturn may reduce their willingness to invest in crowdfunding projects. Entrepreneurs who have already reached their fundraising goals may find their existing business plans disrupted by the pandemic. Entrepreneurs in the midst of crowdfunding may face a decrease in

potential supporters, leading to crowdfunding failure. Compared to data from 2009 to 2015, recent years are more influenced by external factors, so this study did not use recent data for analysis.

Additionally, the period from 2009 to 2015 represents a time of economic stability before the pandemic, with fewer external interference factors. Therefore, analyzing crowdfunding data from this period provides more accurate results. This study is based on Kickstarter platform data from 2009 to 2015 for analysis.

2.1. Research Study 1: The Impact of Gender on Success Rates When Showing Faces

Objective: To examine the influence of gender on crowdfunding success rates when faces are shown and not shown.

Hypothesis 1: The portraits in crowdfunding videos represent the founders themselves.

Hypothesis 2: Potential supporters in crowdfunding projects may have different inclinations toward founders of different genders.

2.1.1. Data Acquisition

Utilizing existing sample data from the Kickstarter platform between April 2009 and December 2015 (Li X, Shi M, Wang X, 2016), including crowdfunding results, founder gender, and the presence of portraits in crowdfunding videos. The study involved 6,958 crowdfunding projects, excluding those with unclear founder gender and without crowdfunding videos. Among the cases with clear gender and crowdfunding videos, there were 2,811 instances, including 439 female founders and 2,372 male founders. The study performed statistical calculations for the crowdfunding success results of female and male founders, considering whether faces were shown or not. Additionally, logistic regression analysis was conducted to explore the extent to which showing faces enhances success rates for different genders.

2.1.2. Data Collection and Results

A 2 (Founder Gender: Male, Female) × 2 (Face Visibility in Video: Yes, No) × 2 (Crowdfunding Success: Yes, No) data design was employed. The explanatory variables were founder gender and whether faces were shown in the video, with crowdfunding success as the dependent variable.

As shown in Table 1, when female founders had crowdfunding videos with visible faces, there were 150 successful projects reaching fundraising goals and 216 unsuccessful projects, resulting in a success rate of 40.98%. In contrast, when faces were not shown, only 15 projects were successful, with 58 unsuccessful projects, yielding a success rate of 20.55%. The success rate when faces were shown was approximately 2.00 times higher than when faces were not shown.

Table 1: Crowdfunding Results for Female Founders in Different Face Visibility Scenarios.

Female	Success(Cases)	Failure(Cases)	Success Rate
Visible Face	150	216	40.98%
Not Visible Face	15	58	20.55%

Table 2: Crowdfunding Results for Male Founders in Different Face Visibility Scenarios.

Male	Success(Cases)	Failure(Cases)	Success Rate
Visible Face	511	1266	28.76%
Not Visible Face	124	471	20.84%

In Table 2, for male founders with crowdfunding videos, when faces were visible, there were 511 successful projects and 1266 unsuccessful projects, resulting in a success rate of 28.76%. When faces were not visible, there were 124 successful projects and 471 unsuccessful projects, yielding a success rate of 20.84%. The success rate when faces were visible was approximately 1.38 times higher than when faces were not visible.

In summary, the crowdfunding success rate is higher when faces are visible compared to when faces are not visible. In scenarios without visible faces, the crowdfunding success rates for female and male founders are similar, while in scenarios with visible faces, the success rate for female founders is significantly higher than for male founders.

2.1.3. Interaction Analysis and Results

(I) Interaction Analysis of Face Visibility on Success Rate within the Same Gender

Table 3: Paired Comparisons.

Dependent Variable: Outcome							
gender1	(I) Human	(J) Human	Mean Difference (I-J)	Standard Error	Significance b	95% Confidence Interval for Difference b	
						Lower Limit	Upper Limit
1.00	0	1	-.161*	.014	.000	-.188	-.134
	1	0	.161*	.014	.000	.134	.188
2.00	0	1	-.286*	.034	.000	-.353	-.219
	1	0	.286*	.034	.000	.219	.353

Based on Estimated Marginal Means
*. Significance level for mean difference is .05.
b. Multiple comparisons adjusted: Least Significant Difference method (equivalent to no adjustment).

The table above presents the interaction analysis results of face visibility on success rate within the same gender. The significance values in the table are all less than 0.001, indicating a significant effect of face visibility on enhancing success rate when the gender of funders is the same.

(II) Interaction Analysis of Funder's Gender on Success Rate with the Same Face Visibility

Table 4: Paired Comparisons.

Dependent Variable: Outcome							
Human	(I) gender1	(J) gender1	Mean Difference (I-J)	Standard Error	Significance b	95% Confidence Interval for Difference b	
						Lower Limit	Upper Limit
0	1.00	2.00	.002	.029	.934	-.054	.059
	2.00	1.00	-.002	.029	.934	-.059	.054
1	1.00	2.00	-.122*	.023	.000	-.168	-.077
	2.00	1.00	.122*	.023	.000	.077	.168

Based on Estimated Marginal Means
*. Significance level for mean difference is .05.
b. Multiple comparisons adjusted: Least Significant Difference method (equivalent to no adjustment).

The table above presents the interaction analysis results of funder's gender on success rate with the same face visibility. When funders do not reveal their faces, the gender does not significantly impact

crowdfunding success rates. In the case of face visibility, the significance value is less than 0.001, and the mean difference (male-female) is less than 0, indicating that, under face visibility conditions, the success rate of male funders is significantly lower than the mean success rate of female funders.

2.1.4. Discussion

From the results of data analysis, gender does not lead to a significant difference in success rates when funders do not reveal their faces in crowdfunding videos. However, when faces are visible, female funders experience a significant improvement in success rates compared to males.

Further interaction analysis validates this conclusion. When funder genders are the same, revealing faces significantly enhances crowdfunding success rates. In cases where funders do not reveal their faces, different genders do not significantly impact crowdfunding outcomes. However, when faces are visible, female funders have a positive and significant impact on crowdfunding success rates.

The minimal difference in success rates when faces are not visible suggests that viewers on crowdfunding platforms seldom differentiate entrepreneurs solely based on gender. However, female funders who reveal their faces attract more supporters, possibly due to the perception of closeness and trust associated with female facial features. In the current "appearance matters" era, people might pay more attention to female appearances, making them more likely to favor female funders who reveal their faces.

Contrary to traditional beliefs that male entrepreneurs are perceived to have greater success potential, on Kickstarter, a platform dominated by opportunity-based entrepreneurship, success rates are roughly equal for entrepreneurs of different genders when faces are not visible. This indicates that there is no gender-based discrimination affecting funding acquisition for male and female entrepreneurs. The decisive factor in crowdfunding success remains the project itself rather than the gender of the founder. Gender is not a key factor in determining success, and crowdfunding platform viewers do not judge project potential based on gender. For entrepreneurs of different genders looking to bring their ideas to life, crowdfunding platforms are ideal platforms where gender is not a decisive factor for success.

2.2.   Research Two: The Impact of Gender on Crowdfunding Success Rates with Different Crowdfunding Product Prices

Objective: Examine the influence of gender on crowdfunding success rates with different crowdfunding product prices.

Hypothesis 3: Assumption that potential supporters in crowdfunding projects will have different inclinations based on the varying prices of products.

2.2.1. Data Collection

Utilize the dataset from Research One, focusing on crowdfunding results, founder gender, crowdfunding product prices, etc. Analyze a total of 6,958 crowdfunding projects, excluding those with unclear founder gender and projects without crowdfunding videos. Divide the product prices based on the average product price of $69.34, creating two price ranges. Calculate the crowdfunding results and success rates for different gender founders in each price range and conduct further regression analysis.

2.2.2. Data Analysis and Results

Utilize a 2 (Founder Gender: Male, Female) × 3 (Product Price: Low, Medium, High) × 2 (Crowdfunding Success: Yes, No) statistical design. Founder gender serves as explanatory variable one, product price as explanatory variable two, and crowdfunding success as the dependent variable.

The crowdfunding project's average product price is $69.34. Table 5 shows that when the product price is less than or equal to the average price, male crowdfunding projects have 876 unsuccessful cases and 267 successful cases, with a success rate of 23.36%. Female crowdfunding projects in this price range have 139 unsuccessful cases and 58 successful cases, with a success rate of 29.44%. Female crowdfunding success rates are higher than males when the product price is less than or equal to the average.

Table 5: Crowdfunding Results for Different Genders When Product Price is Less than or Equal to the Average Price.

	Unsuccessful	Successful	Success Rate
Male (cases)	876	267	23.36%
Female (cases)	139	58	29.44%

Table 6 demonstrates that when crowdfunding project product prices exceed the average, male crowdfunding projects have 573 unsuccessful cases and 258 successful cases, with a success rate of 31.05%. Female crowdfunding projects in this price range have 95 unsuccessful cases and 74 successful cases, with a success rate of 43.79%. Female crowdfunding success rates are significantly higher than males when the product price is greater than the average.

Table 6: Crowdfunding Results for Different Genders When Product Price is Greater than the Average Price.

	Unsuccessful	Successful	Success Rate
Male (cases)	573	258	31.05%
Female (cases)	95	74	43.79%

In conclusion, crowdfunding success rates are generally higher when product prices exceed the average, with female funders consistently achieving higher success rates than male funders in this scenario.

2.2.3. Discussion

From the results of data statistics, when the crowdfunding product price is higher than the average, the success rate is higher, and there is a significant difference in success rates between founders of different genders. The reason for this difference may be that crowdfunding projects selling higher-priced products have more detailed plans, more rigorous and well-thought-out projects, creating a perception of greater project potential for viewers and making it easier for them to invest.

However, the results of regression analysis indicate that gender has no moderating effect on price, and price has no impact on success. This suggests that product price is not a crucial determinant of project success, and success rates for entrepreneurs of different genders do not significantly increase or decrease due to product prices.

These research findings can encourage individuals of all genders to pursue entrepreneurship without worrying about gender discrimination or stereotyping hindering their chances of success.

Moreover, founders need not excessively concern themselves with the pricing of their products affecting crowdfunding results.

2.3. Research Three: The Impact of Gender on Crowdfunding Success Rates with Different Speech Emotions

Speech emotions refer to the emotional information obtained through audio analysis software QA5 for each crowdfunding video, such as anger, satisfaction, energy, and upset (Li X, Shi M, Wang X, 2019). This study focuses on the impact of energy and upset in speech emotions on crowdfunding success rates with different genders of founders.

Objective: Examine the impact of gender on crowdfunding success rates with different speech emotions.

Hypothesis 4: Potential supporters in crowdfunding projects will have different tendencies based on the founders' varied speech emotions.

2.3.1. Data Collection

Utilizing the dataset from Research One, the study examines crowdfunding results, founder gender, energy values, upset values, etc. A total of 6958 crowdfunding projects were analyzed. Founder gender unclear and projects without crowdfunding videos were excluded. Median values of energy and upset were used as thresholds to create high and low intervals. The study then recorded crowdfunding results and success rates for founders of different genders within these intervals, followed by regression analysis.

2.3.2. Data and Results

The study employed a 2 (Founder Gender: Male, Female) × 3 (Speech Emotion: Low, High) × 2 (Crowdfunding Success: Yes, No) statistical design. Gender is the explanatory variable, speech emotion is the second explanatory variable, and crowdfunding success is the dependent variable.

Table 7: Results for different gender crowdfunding when energy is less than or equal to the median.

	Success (Cases)	Failure (Cases)	Success Rate
Female (Cases)	46	74	38.33%
Male (Cases)	227	632	26.43%

Table 8: Results for different gender crowdfunding when energy is greater than the median.

	Success (Cases)	Failure (Cases)	Success Rate
Female (Cases)	124	200	38.27%
Male (Cases)	408	1105	26.97%

Table 9: Results for different gender crowdfunding when upset is less than or equal to the median.

	Success (Cases)	Failure (Cases)	Success Rate
Female (Cases)	59	135	30.41%
Male (Cases)	202	766	20.87%

Table 10: Results for different gender crowdfunding when upset is greater than the median.

	Success (Cases)	Failure (Cases)	Success Rate
Female (Cases)	106	139	43.27%
Male (Cases)	433	971	30.84%

2.3.3. Regression Analysis and Results

Table 11: Energy and upset.

outcome	Coefficient	Std. err.	z	OR	lci	uci	P>|z|
gender	-0.300	0.175	-1.720	0.741	0.526	1.043	0.086
energy	0.074	0.042	1.780	1.077	0.992	1.169	0.076
upset	0.265	0.091	2.910	1.304	1.090	1.558	0.004
gen_energy	-0.010	0.023	-0.420	0.991	0.948	1.035	0.673
gen_upset	-0.055	0.048	-1.140	0.947	0.862	1.040	0.255
cons	-1.200	0.330	-3.640	0.301	0.158	0.575	0.000

Regression analysis was conducted for speech emotions (energy and upset) and gender, indicating the lack of significant moderating effects of gender on speech emotions.

2.3.4. Discussion

The statistical results show that, for founders of different genders, the impact of energy levels in crowdfunding videos on success rates is not significant. However, higher upset values lead to a greater success rate, with a similar increase for founders of different genders.

The regression analysis concludes that gender does not significantly moderate the effects of energy and upset. This implies that speech emotions do not notably increase or decrease the success rates of entrepreneurs of different genders.

In crowdfunding platforms, potential supporters can only assess founders through online information, including crowdfunding videos and project descriptions. The trustworthiness of founders is a crucial factor in project success. Contrary to real-life scenarios, overly enthusiastic speech may raise suspicions, and an appropriate level of upset expressed in speech could enhance perceptions of humility and sincerity, potentially increasing project success rates. Previous research suggests that consistency between facial expressions and speech emotions contributes to success, and we can reasonably speculate that higher success rates for higher upset levels result from more consistent facial expressions and speech emotions.

3. Conclusion and Recommendations

This study conducted three empirical tests on the impact of founder gender in different situations: showing face, different product prices, and varied speech emotions. The final results indicate that, under the condition of showing face, female gender has a significant positive effect on crowdfunding success rates. However, the influence of founder gender on crowdfunding success rates is not significant under different product prices and speech emotions.

Based on the empirical test results, it is recommended that founders show their faces in crowdfunding videos to increase trust and establish a closer connection with potential supporters. The significant positive impact of female gender under the condition of showing face suggests that female founders are more welcomed by potential supporters. This might reflect the ongoing influence of appearance, even in crowdfunding projects, during the years 2009 to 2015. In comparison to traditional funding for entrepreneurial projects, the success of crowdfunding projects is not only determined by objective factors such as potential, creativity, and project field but is also influenced by the emotional tendencies of potential supporters. This suggests that entrepreneurs launching projects on crowdfunding platforms should consider adding other factors that can generate positive emotional tendencies in project introductions, such as friendly greetings and informal self-introductions.

However, the above statistics are based on platform data from 2009 to 2015. With the rise of female awareness and the increase in gender equality movements in recent years, the impact of different gender appearances on crowdfunding success rates may have changed. Additionally, the popularity of short video platforms globally may intensify or diminish the trend of judging projects based on appearance on crowdfunding platforms. These shortcomings in the study warrant more detailed and accurate exploration in the future.

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