GO FUND YOURSELVES! PREDICTING THE LIKELIHOOD OF OBTAINING CAPITAL THROUGH ONLINE CROWDFUNDING

Juan Carlos Barcelón, De La Salle University
John Gerald Dulay, De La Salle University
Josemaria Rustia, De La Salle University
Danica Camille Yu, De La Salle University
Patrick Adriel H. Aure, De La Salle University
Denver D. Daradar, De La Salle University

ABSTRACT

This study explores the various endogenous factors that affect the likelihood of obtaining required capital (LORC) for online crowdfunding platform projects in Kickstarter and The Spark Project. These factors include amount of capital required, campaign length, currency, Facebook connectivity, month of launch, number of FAQs, number of images, number of reward levels, number of updates, number of videos, and product market category. Based on a dataset sample of 400 projects for Kickstarter (95% confidence level) and dataset of 63 projects for The Spark Project (100%) confidence, the researchers conducted linear discriminant analysis and binary logistic regression. The researchers also interviewed three respondents who have had firsthand experience with online crowdfunding. Based on a cross analysis, the results showed that in Kickstarter, the following variables are conclusively significant to LORC: amount of capital required, campaign length, number of images, and number of videos. On the other hand, only amount of capital required was conclusively significant in The Spark Project.

In the Philippines, entrepreneurs face multiple challenges to receiving the funding they need from traditional methods. Because of this, many great ideas and profitable ventures fall short even before they could begin. This hampers the innovative environment of the country and makes it harder for the common enterprising Filipino to alleviate their economic challenges and attain their dreams.

Given this, rewards-based online crowdfunding has a strong potential to uplift the entrepreneurial ecosystem of the Philippines and to help struggling entrepreneurs by serving as an easy-to-access and viable alternative source of startup capital. Online crowdfunding is a recent phenomenon wherein entities (i.e. project creators) seek funding for their projects by appealing to large groups of people (i.e. potential backers) who provide smaller contributions in order to obtain larger capital within a given period of time. Due to its open and accessible nature, even the most marginalized members of society can benefit from this avenue.

Multiple endogenous factors (i.e. features of the campaign) affect a crowdfunding project's likelihood of obtaining required capital (LORC). Based on various studies, the researchers decided to look into the following variables: amount of capital required, campaign

length, currency, Facebook connectivity, month of launch, number of FAQs, number of images, number of reward levels, number of updates, number of videos, and product market category.

Using linear discriminant analysis, the researchers found that currency has a discriminating power towards global platforms, while number of FAQs and month of launch have a discriminating power towards local platforms. Likewise, using logistic regression, the researchers found that amount of capital required, number of FAQs, number of updates, and product market category are highly significant (α = 0.01) under global platforms (i.e. represented by Kickstarter). In local platforms (i.e. represented by The Spark Project), none of the variables were highly significant, but amount of capital required was very significant (α = 0.05).

The study also takes into account the insights of three key stakeholders who had firsthand experience with online crowdfunding, particularly in Kickstarter and/or The Spark Project. All three respondents gave insights on each of the variables, identifying some with significant impact on LORC. For Kickstarter, all three agreed that amount of capital required, campaign length, number of images, and number of videos are significant. For The Spark Project, all three concurred that amount of capital required, Facebook connectivity, number of videos, and product market category have significant impact. They also identified three new variables: story, crowd, and product.

With such insights, this study may help aspiring entrepreneurs in the Philippines launch projects successfully through online crowdfunding. The researchers developed a machine learning program based on the results of the statistical analysis of this study, which will be turned into an application that determines the likelihood of a project's success at obtaining LORC and its suitability in local or global platforms based on project features inputted by the user. This will be released as a product for entrepreneurs as a means of helping them plan their project campaigns for success should they set out to access online crowdfunding.

Keywords: Crowdfunding, LORC, endogenous factors, project campaign, project creators, backers, Kickstarter, The Spark Project

INTRODUCTION

Crowdfunding is the "financing of a project by a group of individuals (collectively, 'the crowd') instead of professional 'accredited' entities or individuals such as banks, venture capitalists or business angels" (Mitra, 2012, p. 67). As globalization accelerates the e-commerce industry, it is becoming easier to access countless resources online. The most common methods of attaining capital funding have been through equity and debt, but online crowdfunding has made its niche by providing unique attributes that traditional methods do not have (Beier & Wagner, 2015). Many entrepreneurs are unable to access traditional methods due to a lack of credit rating, low starting capital, the need for collateral, and stringent requirements. Furthermore, it is often difficult to convince a few investors to invest large amounts of money, especially for novel and innovative ideas. In the Philippines, these issues are very apparent, compounded by the fact that the economy is predominantly impoverished.

Online crowdfunding has the potential to address all these issues and to help entrepreneurs. The avenue does not have stringent requirements. It is easily accessible through

the internet. It does not rely on a few large investors, but rather, on small investments made by many investors. It has a free and convenient marketing system, and promotes novel and innovative ideas. It also encourages the promotion of social causes, allowing marginalized members to benefit from the contributions of many in an effort similar to social enterprises.

Nonetheless, online crowdfunding is not perfect, and projects are prone to fail if they are not managed correctly. As such, this study seeks to gain a better understanding of how certain features (i.e. endogenous variables; crowdfunding campaign elements) impact a project's likelihood of obtaining the capital amount it needs.

Before proceeding, an important term to consider is the likelihood of obtaining required capital (LORC). This refers to how likely a project will successfully reach its capital target within its campaign period.

In this study, the researchers set out to answer the following **research questions:**

What is the likelihood that a crowdfunding campaign would best be suited for global or local crowdfunding platforms, given the following factors:

Amount of Capital Required
Campaign Length (*for Kickstarter only*)
Currency (*for Kickstarter only*)
Facebook Connectivity
Month of Launch
Number of FAQs
Number of Images
Number of Reward Levels
Number of Updates
Number of Videos
Product Market Category

Considering the case of a global and a local platform, what are the odds that the likelihood of attaining its required amount of capital would increase or decrease given the following variables:

See the 11 variables listed in Research Question 1

To what extent do the discriminant functions used in this study provide an accurate representation of the predicted group membership of crowdfunding projects within global and local crowdfunding platforms?

To what extent do the logit link functions used in this study provide an accurate representation of the relationship between the endogenous factors and the likelihood of attaining the required amount of capital?

From a qualitative standpoint, what factors contribute most prominently to the success of crowdfunding projects at attaining their capital targets in global and local crowdfunding platforms? How do these factors contribute to such success?

Furthermore, the researchers fulfilled the following **research objectives:**

To ascertain which endogenous factors affect the likelihood of crowdfunding projects being grouped in either global or local crowdfunding platforms, and to what extent these factors do so

To determine which endogenous variables, affect the likelihood of crowdfunding projects obtaining their required amount of capital in global and local crowdfunding platforms, and to what extent these variables do so

To determine the statistical significance between the relationships mentioned in the first two objectives, and the goodness of fit for the models used in this study

To create a predictive machine learning model using linear discriminant algorithms and logistic regression algorithms that would enable crowdfunding project creators to know the likelihood of attaining their required amount of capital, and to determine whether global or local platforms are more appropriate based on the characteristics of their projects

To determine how and why such significant endogenous variables affect the likelihood of crowdfunding projects obtaining their required amount of capital, through the insights derived from a qualitative in-depth interview

In the succeeding table, the **hypotheses of the study** are listed and detailed:

Table 1
Hypothesized Relationship of Endogenous Variables

Variable	Label	Expected Sign	Alternative Hypothesis (H_A)	Null Hypothesis (Ho)
Amount of Capital Required	X_{CAP}	Positive	The variable increases the LORC of an online crowdfunding project campaign	The variable *does not* increase the LORC of an online crowdfunding project campaign
Campaign Length	X_{LEN}	Positive		
Currency	X_{CUR}	Positive		
Facebook Connectivity	X_{FBC}	Positive		
Month of Launch	X_{MON}	Positive		
Number of FAQs	X_{FAQ}	Positive		
Number of Images	X_{IMG}	Positive		
Number of Reward Levels	X_{RWD}	Positive		
Number of Updates	X_{UPD}	Positive		
Number of Videos	X_{VID}	Positive		
Product Market Category	X_{CAT}	Positive		

Likewise, the study considers two *a priori propositions* for its qualitative analysis:

Proposition 1: There are select factors (i.e. those identified in the related literature and the research questions of this study) that affect the likelihood of obtaining the required capital for crowdfunding projects, for local and international crowdfunding platforms.

Proposition 2: There are other factors (i.e. those not identified in the related literature and the research questions of this study) that affect the likelihood of obtaining the required capital for crowdfunding projects.

Furthermore, the study takes into account several **limitations:**

Study only covers rewards-based crowdfunding projects
Study only samples Kickstarter and The Spark Project
The study considers aggregate data due to lack of access to time series data
The statistical results for Kickstarter have a 95% confidence level
Only three respondents were considered, for purposes of accessibility and focus
The study does not specifically look into other possible factors beyond the eleven listed out, although it does employ a stochastic error term in its statistical analysis

REVIEW OF RELATED LITERATURE

Research has shown that financing in the Philippines, especially by SMEs, has proven to be difficult. SMEs become risky and costly as they face the following challenges and limitations that make it difficult for them to even reach banking standards: poor credit history, limited track record, lack of credit info, limited acceptable collateral, unstable business type/environment, limitations in financial and management capabilities, and lack of familiarity with SME business environment (Aldaba, 2012). The Philippines has enough resources to assist in funding SMEs but difficult processes, requirements and regulations make it difficult to do so. Therefore, the lack of access to financing is observed to be the most difficult constraint to SME growth (Aldaba, 2012; Ibrahim, 2015).

With this financial problem the concept of crowdfunding has become ever-more significant. Schwienbacher & Larralde (2010) described it as an innovative and relatively new method for funding a variety of new ventures whether for-profit, cultural, or social projects through the financial support of many individuals, usually in exchange for future products or equity. Projects range greatly in terms of goals & magnitude from small artistic ones to large-scale businesses. Further studies also show the benefits of the model of crowdfunding in various forms such as traditional approach streamlines with acquiring capital made is made easier by providing the economy more opportunities to grow at a faster rate. Moreover, larger audiences are reached as through the internet, online crowdfunding becomes an internal hub for entrepreneurs and potential investors to interact. Startup creation is also made efficient, from the introduction of a product or service to the PR and Marketing, and to its payment processing scheme. And with its unique model, it not only holistically prepares startups by looking at every angle of the business, but also crowdfunding has ingenuity at its score. It provides excellent opportunities for refinement of products/services; its success largely boils down to its purpose, innovation, and demand in the market (Garecht, n.d.; Jenik et al., 2017; Kraus et al., 2016; Mollick, 2014; The World Bank, 2013)

Table 2
Review of Related Literature – Main Findings and Insights

Main Author/s (Year)	**Topic/Variable considered**	**Relevant Insights and Findings**
Mollick (2014)	Endogenous factors: Amount of Capital Required	Likely backers lean towards projects that provide them a higher sense of security in terms of investments.
Pappaioannou, 2006; Patnaik, et. al., 2015	Endogenous factors: Currency	Crowdfunding projects can reap potential hedge benefits but also face risks that come because of fluctuations in the foreign exchange market.
Cumming, et. al., 2015; Crossetto & Regner, 2014; An et. al., 2014	Endogenous factors: Number of Reward Levels	Backers have a positive perception of certain types of rewards, particularly product-oriented rewards. *Number of reward levels* also affect their perception.
Canada Media Fund (2015)	Endogenous factors: Campaign Length	The right length of time is essential to the success of a campaign. The optimal length for a campaign is 45 days.
Liu, et al. (2010); Canada Media Fund (2017)	Endogenous factors: Product Market Category	Product market categorization allows the segregation of a "heterogeneous market" into a group of "smaller homogeneous markets". This addresses different demands and product preferences that may positively affect campaign's promotion under certain circumstances. The Canada Media Fund reveals the following findings in terms of success rates at Kickstarter: Games (35%), Film (40%), Dance (71%), Theater (64%), and Music (55%). These suggest that certain market categories are more successful than other market categories and could suggest a correlation.
Beier & Wagner, (2015); Kerkhof, (2016)	Endogenous factors: Facebook Connectivity	Social capital is a very important tool for marketing crowdfunding projects, since having a strong social network aids in the marketing of a project. Through Facebook, project creators can reveal their project, market their product, and have constant interaction with the potential backers.
Daniele & Gangi (2017); Kerkhof (2016); Mollick (2014)	Endogenous factors: Updates	Updates serve as a means for project creators to communicate with backers. Furthermore, they send out "quality signals" to backers, assuring them that their investment going through progress in a quality product.

Shane and Cable, (2002); Chen, et al., (2015)	Endogenous factors: FAQs	Information asymmetry is one of the problems that entrepreneurs encounter when they start a project. Due to this, backers lack knowledge on the project's success, thus creating risk and doubt. Having FAQs is a form of interaction with the backers that assures them of the credibility of the project.
Jiang & Benbasat (2007); Koch & Siering (2015); Mollick (2014); Egger (2001); Fogg, et al. (2001); Park & Hopkins (1993);	Endogenous factors: Number of Videos	Videos provide backers with a better understanding of the project and serve to grab attention and add aesthetics. Furthermore, they provide a visual appeal that static images cannot. They allow backers to "meet" the project creators virtually, establishing greater trust. It also sends quality signals that reassures backers, as magnified through the Matthew Effect.
Siri (2015); Coveyou (2017)	Endogenous factors: Month of Launch	Campaign times are typically short. As such, project creators must execute these at optimal times. When planning when to launch a project, the creator must consider times and seasons potential backers are most likely connected online. Holiday seasons are least profitable.

RESEARCH DESIGN AND METHODOLOGY

The researchers based their assumptions on *Shul Vun Thun's Theory of Communication* aka the Four-Sides Model (Kraus, 2016), which Kraus (2016) adapted in his own theory of crowdfunding. The theory suggests that any message sent from a sender to a receiver comprises of four types of information: facts, self-revealing, relationship, and appeal. In relation to crowdfunding, these four types can be likened to the features of a crowdfunding page.

In line with this theory, the researchers proposed a conceptual framework that details each of the eleven endogenous factors surfaced from the literature, and listed in the hypothesis as having an effect, whether positive or negative, on the LORC of a campaign.

A *convergent parallel mixed methods* research design was used (Creswell, 2014), wherein both the quantitative and qualitative analyses were conducted at roughly the same time, followed by a cross-analysis and integration of results to generate further insights.

Throughout the analyses, two main platforms were used as samples - Kickstarter as a representative of global rewards-based crowdfunding platforms, and The Spark Project as a representative of local ones. For the quantitative analysis, datasets were sourced from publicly available data. For the qualitative analysis, information was gathered from interviews.

In the quantitative analysis, a predictive machine learning model with two main components was created. The first was a *linear discriminant analysis* (LDA) model that predicts the appropriate group membership of crowdfunding projects in either local or global crowdfunding platforms and determines the strongest discriminating variables amongst the eleven variables. The second is a *logistic regression* model that tests the significance of the eleven variables of this study on the LORC of projects, based on the datasets used. The logistic

regression analysis was conducted twice - once for Kickstarter, and once for The Spark Project - since the researchers speculated that the variables with a significant impact on LORC would vary between global and local platforms.

In the qualitative analysis, *guided, semi-structured in-depth interviews* were conducted, centered primarily on the eleven variables. This involved three key respondents who have had firsthand experience with online crowdfunding in Kickstarter and/or The Spark Project. One respondent was Patch Dulay, the CEO and founder of The Spark Project, who also has experience in creating and backing projects locally and internationally. The other respondent was Richard Dacalos, the creator of the Upstart board game, which was successfully funded in both Kickstarter and The Spark Project. He is also a project backer in both platforms. The other respondent was Stephen Co, creator of Tropic Haze, which is one of the first projects in The Spark Project. He is also a project backer in The Spark Project. It is worth noting that none of the respondents were told the results of the statistical analyses before or during the interview, so as to avoid biasing their responses.

The results from both quantitative and qualitative analyses were then compared in a cross-analysis that focused on the endogenous factors that most affect LORC, as well as identifying variables for future studies to look into.

To see a summary of the methodology design described, see the figure below:

DATA ANALYSIS AND INTERPRETATION (QUANTITATIVE)

For the quantitative analysis, the researchers first performed linear discriminant analysis (LDA). However, prior to that, they performed certain pre-tests such as: a Covariance Matrix Heteroscedasticity Test and a Multivariate Outlier Test, wherein necessary adjustments to the dataset were made. The linear discriminant analysis results are below:

Table 3
Standardized Canonical Discriminant Function Coefficients

Independent Variables		Canonical Coefficients
Currency	USD	4.437
	CAD	2.369
	GBP	3.538
	AUD	1.893
Month of Launch	Jul	-0.157
	Sep	-0.135
	Nov	-0.113
Number of FAQs		-0.202

The group centroid for local platforms was derived to be located at -10.876 on an axis, while that of global platforms is located at 1.699. Considering the midpoint of -4.5885 between both centroids, observations with discriminant scores greater than -4.5885 are more likely to be suited for global platforms, while those with discriminant scores less than -4.5885 are projects that are more likely to be suited for local platforms. Hence, variables with positive coefficients

make a project more likely to be suited for global platforms, while those with negative coefficients point to local platforms.

The discriminant score of an observation can be calculated by substituting values in the discriminant function:

$$x\lambda = (4.437)X_{CURusd} + (2.369)X_{CURcad} + (3.538)X_{CURgbp} + (1.893)X_{CURaud} + (-0.202)X_{FAQ} + (-0.157)X_{MONjul} + (-0.135)X_{MONsep} + (-0.113)X_{MONnov} + \varepsilon$$

To determine the goodness of fit for the linear discriminant model, the researchers examined its eigenvalue (18.568), and its Wilk's Lambda (0.051, sig. 0.000). Since the eigenvalue is a positive non-zero value, and Wilk's lambda is significant, then the model used for the LDA is good representation of the given phenomenon.

After the linear discriminant analysis, the researchers performed binary logistic regression analysis twice - once for global platforms (i.e. Kickstarter) and another for local platforms (i.e. The Spark Project). Prior to which, they also did certain pre-tests such as: Multicollinearity Test, Misspecification Test, and Autocorrelation Test. The results of such pre-test showed no problems in the datasets. Continuing, the results for the binary logistic analysis below:

Table 4
Logistic Regression Results for Kickstarter (Global)

		Coefficient	Odds Ratio	p-value	Significance
Constant		1.82922	-	0.2022	
Amount of Capital Required		−0.731154	0.4814	<0.0001	***
Campaign Length		−0.0348117	0.9658	0.0155	**
Number of Videos		−0.261224	0.7701	0.0135	**
Number of Images		0.0411576	1.0420	0.0293	**
Number of FAQs		0.308802	1.3618	0.0074	***
Facebook Connectivity		−0.574965	0.5627	0.0631	*
Number of Updates		0.387468	1.4732	<0.0001	***
Currency	USD	3.14488	23.2170	0.0107	**
	CAD	2.44607	11.5429	0.0819	*
	EUR	3.54397	34.6039	0.0591	*
	GBP	2.42095	11.2565	0.0590	*
Product Market Category	Arts	1.15396	3.1707	0.0102	**
	Music	1.59048	4.9061	0.0005	***
	Film	1.43325	4.1923	0.0006	***
	Publishing	1.09270	2.9823	0.0152	**
Month of Launch	Apr	0.676241	1.9665	0.0326	**

*Significant: α = 0.10; **Very Significant: α = 0.05; ***Highly significant: α = 0.01

Table 5
Logistic Regression Results for The Spark Project (Local)

		Coefficient	Odds Ratio	p-value	Significance
Constant		10.9290	-	0.0088	***
Amount of Capital Required		−1.32592	0.2656	0.0125	**
Number of Reward Levels		−0.290980	0.7475	0.0796	*
Number of FAQs		0.181634	1.1992	0.0776	*
Number of Updates		0.351522	1.4212	0.0763	*
Month of Launch	May	2.05191	7.7827	0.1105	
	Jul	1.63476	5.1282	0.0960	*

*Significant: α = 0.10; **Very Significant: α = 0.05; ***Highly significant: α = 0.01

Similar to the LDA, the researchers also determined the goodness of fit for both the global and local models. Using three pseudo R-squared values (McFadden's R^2, Cox & Snell R^2, and Nagelkerke R^2), the researchers arrived at values ranging from 0.353 to 0.506 for the global model, and 0.250 to 0.384 for the local model. According to McFadden, Hensher, and Stopher (1979), values of at least 0.2 to 0.4 already represent an excellent fit for the model. Hence, the logistic regression models used for this study are accurate representations of the relationship between the different endogenous factors and LORC.

After both linear discriminant analysis and binary logistic regression, the researchers used the derived discriminant function and logit link functions to create a machine learning model that predicts if a project would be more suited to a global or local platform, and if it would have a high or low LORC. The model correctly predicts platform membership 99.30% of the time, and correctly predicts LORC 79.30% for a global platform, and 77.80% for a local platform (considerably greater probability in comparison to chance prediction).

DATA ANALYSIS AND INTERPRETATION (QUALITATIVE)

The respondents shared contextual insights on all eleven variables set out for this study, as well as on new variables (i.e. quantifiable and unquantifiable) that factor in prominently in a project campaign's LORC. Among the new variables, the most emphasized ones included *story, product* (i.e. quality, marketability), and *crowd* (i.e. initial network, community). For the purposes of this summary, the researchers focus on the insights that indicate that a variable has a significant impact on LORC. These are detailed in the succeeding table:

Table 6
Respondents' insights resulting from in-depth interview

	KICKSTARTER				THE SPARK PROJECT			
Variables	**PD**	**RD**	**SC**	**Supported**	**PD**	**RD**	**SC**	**Supported**
Amount of Capital Required	✓	✓	✓	FS	✓	✓	✓	FS
Campaign Length	✓	✓	✓	FS	✓		✓	PS
Currency				NS	✓	✓		PS
Facebook Connectivity	✓		✓	PS	✓	✓	✓	FS
Month of Launch		✓		PS	✓	✓		PS
Number of FAQs	✓		✓	PS	✓			PS
Number of Images	✓	✓	✓	FS	✓		✓	PS
Number of Reward Levels	✓	✓		PS	✓			PS
Number of Updates	✓		✓	PS	✓		✓	PS
Number of Videos	✓	✓	✓	FS	✓	✓	✓	FS
Product Market Category			✓	PS	✓	✓	✓	FS
Story**	✓	✓	✓	FS	✓	✓	✓	FS
Crowd**	✓	✓	✓	FS	✓	✓	✓	FS
Product**	✓		✓	PS	✓		✓	PS

Note: PD = Patch Dulay; RD = Richard Dacalos; SC = Stephen Co;
FS = Full Supported; PS = Partially Supported; NS = Not Supported
** New variables that emerged during the interview

In the table shown, the check marks signify that the designated respondent indicated that the corresponding variable has a meaningful impact on LORC under the given online platform. In cases where all three respondents indicate a significant impact (i.e. three checks), the variable is "fully supported". In cases with less than three, then it is "partially supported". In cases with none of the respondents, then it is "not supported". Table7 contains the further insights of respondents.

Table 7
Insights from the Respondents

	PD	**RD**	**SC**
Amount of Capital Required	"Doable" goal needed; 80-30 rule; backers need to feel like their contribution has impact	Very important in both local and global platforms; lower target may be more effective	Ideal amount would depend on the type of product; although he says its not important, he still makes suggestions and insights. For The Spark Project, somewhere between 600,000 to 800,000 is doable.
Campaign Length	30-45 days is ideal; "peak" at start and end of campaign	Nothing more than 30 days is good; First 48 hours is peak of hype	About one month to 45 days; within first two weeks, about 70% of target should have been achieved

Currency	Says PHP is good for local, but says nothing about its impact abroad	Not a major issue	No major comment; PHP locally is common;
Facebook Connectivity	FB is a good indicator of social network, and can be valuable for gaining a following prior to a project; "first level supporters"	Facebook has a high penetration rate in the Philippines. FB is not as prominent abroad, since alternatives like Instagram, Twitter, and even Reddit and Product Hunt are chosen for credibility	People tend to do background checks on projects. They would want to investigate the FB page for credibility, information, the creators, etc
Month of Launch	He implies that projects require preparation phases and timing, he does not make any specific reference to international seasons. Locally, two main seasons: Christmas and Summer.	Can be challenging to time; In the case of Kickstarter, consider when backers pay credit card bills. Consider Christmas and summer	No comment; said it could be important, but did not consider it; just launch when you're not busy and when your project is ready
Number of FAQs	Important for transparency	Mentioned its inclusion, but nothing on its impact	Although he does not make use of it, he acknowledges it is important for disclosing information in relation to the projects' post-funding activities. In his experience locally, questions are usually directed at him.
Number of Images	Has comparable effect to videos	Important for showing features	More images is better, but quality is also important
Number of Reward Levels	5-7 Levels based on Kickstarter insights. One must appeal to different appetites; for The Spark Project, minimum of 500 pesos, max of 10K reward	3 is optimal; fewer is good to make things less confusing	Not as important, but maybe 5 would be good
Number of Updates	Transparency is important to assure backers; noise needed to keep people engaged, even if some projects do not post	Emphasized the use of videos for updating people, rather than the typical updates (text-based)	More updates would be better to give the impression of movement and progress; good for marketing
Number of Videos	Video is one of the first things that a potential backer sees and acts as first pitch.	Videos are essential for building trust and getting backers to trust the creator	Quality of video is essential; however, having just one would be enough
Product Market Category	Suggests that Kickstarter started out as film and art, then got tech projects; but made no insights on current trends and impact. Locally, product design (fashion, bags, shoes, etc) and food that doesn't spoil quickly are popular.	Simply mentioned check Kickstarter statistics, but did not give any specific insights. Mentioned that in The Spark Project, all rewards-based products are more popular or prominent	Product category should be determined based on target market; "crowfundability" (i.e. can the product thrive on crowdfunding, or should you course it through other funding methods); follow trends. In The Spark Project, tangible and durable products are the most popular

Story**	The most important factor; lets people relate to the project and the team behind it	"Why are you crowdfunding"; if money is the motive, then don't do it; a good story is important to back good video, etc	Story is essential, and he asserts it's the most important factor; story can determine whether a product can be crowdfunded or not; most projects that succeeded had "a good story to tell"
Crowd**	Friends and network who a project creator initially taps; 80 percent of funding comes from them; need to identify them first before launching	Larger starting community is good, since 33% of funding target will come from them	Suggests that one must approach initial family and friend first when asking for funding; also, importance of marketing is emphasized
Product**	A unique product is a source of motivation for people who want to own a product before it even reaches the market; Quality is essential		Product needs to be timely and relevant to market demands. If product is not relevant or timely, then it might not succeed, even with a good story

** New variables that emerged during the interview

DATA ANALYSIS AND INTERPRETATION (CROSS ANALYSIS)

Initially, variables were identified that were significant to LORC based on statistical analysis and the insights of respondents. Now, the results from both methods are compared, as shown in the next table:

Table 8
Tabulated Cross Analysis results

	Quantitative		Qualitative	
Factors	**Kickstarter**	**The Spark Project**	**Kick-starter**	**The Spark Project**
Amount of Capital Required	✓ (-)	✓ (-)	FS	FS
Campaign Length	✓ (-)		FS	PS
Currency	✓ (+) USD, CAD, EUR, GBP		NS	PS
Facebook Connectivity	✓ (-)		PS	FS
Month of Launch	✓ (+) Apr	✓ (+) Jul	PS	PS
Number of FAQs	✓ (+)	✓ (+)	PS	PS
Number of Images	✓ (+)		FS	PS
Number of Reward Levels		✓ (-)	PS	PS
Number of Updates	✓ (+)	✓ (+)	PS	PS
Number of Videos	✓ (-)		FS	FS
Product Market Category	✓ (+) Arts, Music, Film, Publications		PS	FS

*✓ = Statistically significant
FS = Full Supported; PS = Partially Supported; NS = Not Supported

The results of the cross-analysis show the variables that are conclusively impactful (considered both significant in the quantitative analysis and fully supported in qualitative analysis) to the LORC of a campaign project and those which require further study.

CONCLUSION AND RECOMMENDATIONS

The following are the variables that were both statistically significant (quantitative method) and fully supported by all three respondents (qualitative method) for each platform:

Kickstarter

- Amount of Capital Required
- Campaign Length
- Number of Images
- Number of Videos

The Spark Project

- Amount of Capital Required

All variables not mentioned above as to be considered both statistically significant (quantitative method) and fully supported by all three respondents (qualitative method) for each platform require further studies as these variables only showed some form of support for only either the quantitative or qualitative method.

Table 9
Table of Accomplished Objectives

Approaches	Methods	Research Question(s) Addressed	Objectives Addressed	A priori propositions
Quantitative (Phases 1 & 2)	Linear Discriminant Analysis Binary Logistic Regression Predictive Machine Learning Model	1,2,3,4	1,2,3,4	1
Qualitative (Phases 1 & 2)	Qualitative in-depth interviews	5	5	2
Quantitative & Qualitative (Phase 3)	Cross-Analysis of Findings	2,4,5	1,2,4	1,2

Machine Learning Program (Contribution to Practice)

As mentioned earlier, the Python-based machine learning program uses a supervised discriminant algorithm and logistic algorithms to predict platform membership and LORC. To execute the algorithms, the program implemented the *pandas*, *numpy*, *matplotlib*, and *sklearn* modules. The researchers hope that this program can and will be implemented in various online

crowdfunding platforms to help future entrepreneurs determine which platform is best suited for them, and if their projects are predicted to have a high LORC.

To view the program, you may open this link: https://github.com/J1Barcelon/crowdfundingPredictor.

Theory Recommendation (Contribution to Scholarship)

Based on the results of the study, the researchers propose a new theory to contribute to academic research on the topic. The new theory is a modification to the crowdfunding adaption to the Theory of Communication described earlier in Chapter 3. Among the changes to the theory include the *project owners* of the message is replaced with *project creators* while retaining the *crowd* element. In addition, the *project* element was replaced with *campaign*, wherein *campaign* refers to the the general phenomenon behind a crowdfunding project, encapsulating two new concepts or layers: *story* and *project*. The *story* consists of certain variables that act as the foundation of a campaign. The researchers believe that in a crowdfunding context, story includes variables that answer the 5Ws, what, where, why, when, where, who, and also how. This also pertains to the first components project creators usually address when conceptualizing a crowdfunding campaign, which in turn are also the first aspects the crowd will usually acknowledge or identify in a campaign. These variables are namely: *product, video, images, updates, reward levels, social media, and product market category.* Together, these creates a coherent story of the campaign and how it's delivered. These are based on the qualitative results, the *story* of a campaign communicates is ultimately one of the main factors that contributes to its successful backing. Ultimately, the campaign cannot move forward if the project creator is not convinced with the compellingness of the campaign's story.

On the other hand, *project* includes technical and external variables that are influenced by the campaign's story and are technical aspects that also contribute to the information communicated by the project but do not directly affect the story. These include *currency, FAQs, campaign length, and amount of capital required.* With the explanation of the concept behind the separate layers, story and project, the researchers believe that under campaign, these are mutually inclusive, where one cannot exist without the other. However, factors that differ between these two concepts are based on the variables' indispensability in communicating the essence of a campaign as well as their significance to LORC based on the study's quantitative and qualitative analyses. The researchers proposed is the inclusion of a *feedback* element from the crowd to the campaign, which is communicated back to the project creators. While many responses are possible, feedback in the context of crowdfunding is merely limited to the dichotomous choice of whether one backs the project or not in order to determine campaign's effectivity. Thus, the flow of communication, begins with the project creator first conceptualizes the story then extracts the project details. Upon communicating the campaign, the crowd processes the story, recognizes the project or details behind it, and gives feedback on the campaign to the project creators. The entirety of this theory's outcomes will then be based on the interaction that occurs in either the global or local context due to the varying results from using global and local crowdfunding platforms.

To visualize this modified theory, the researchers have made the following diagram:

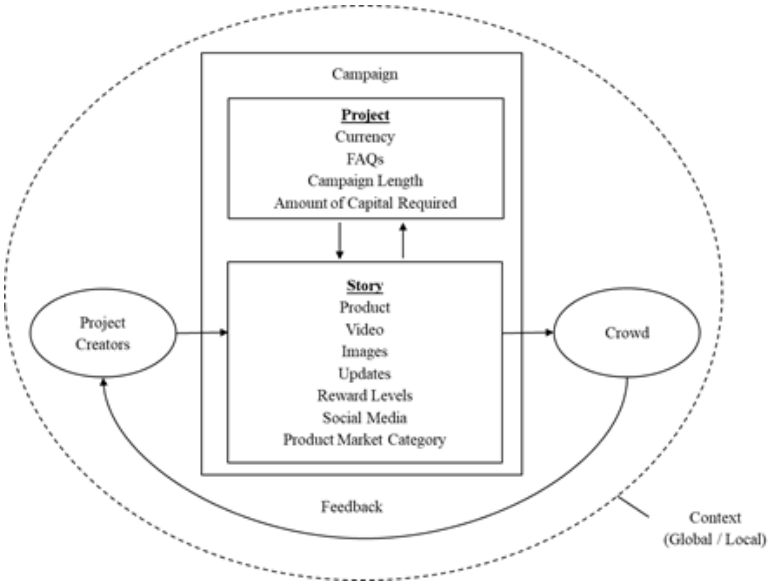

Figure 1. Proposed revised theory of communication

Recommendations for Future Research

As for our recommendation for future research, we identified six (6):

1. Extend the topic to other types of crowdfunding (debt, equity, donation-based)
2. Extend the topic to other prominent online crowdfunding platforms (Indiegogo, Gofundme, etc.)
3. Acquire a greater sample dataset confidence level, perhaps 99%
4. Look into factors discovered in the qualitative aspect of this study, outside the initial list of endogenous factors (e.g. Product, Story, Crowd)
5. Review the differences in quantitative and qualitative results of this study and create as basis for future research to confirm, explore, and explain these differences
6. Program a graphical user interface (GUI) using packages such as *tkinter* or *kivy*

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