WHY DO PEOPLE INTEND TO BACK CROWDFUNDING PROJECTS? A PERSPECTIVE ON SOCIAL COGNITIVE THEORY

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ABSTRACT

This study employs social cognitive theory as a theoretical foundation to empirically explore the influential antecedents of backing intention on crowdfunding platforms. We collected 221 valid samples via Facebook, and the data were analyzed using the partial least squares method. To more deeply understand the applicability of the proposed model across different backing experiences, we also test the proposed model with two sub-samples (with and without backing experience). Results of the path analysis supported all hypotheses for all sample groups, except for the hypotheses stating the insignificance of the rewards (*empathy*) on backing intention among those with (*without*) backing experience group. This study has implications for scholars to understand the antecedents of funders' intentions on crowdfunding platforms and for crowdfunding platform managers and project creators to facilitate the strategic planning of backing design and business practices.

Keywords: Crowdfunding; Social cognitive theory; Backing self-efficacy; Rewards; Empathy; Website service quality

1. Introduction

Crowdfunding is a practice of raising small amounts of money from a group of people using the Internet platform to back a specific project. Funders usually receive a product or other forms of rewards in exchange for the money pledged [Belleflamme et al. 2014; Bradford 2012; Gerber & Hui 2013; Mollick 2014]. In a crowdfunding mechanism, everyone can initiate a fund-raising proposal. Through rapid diffusion of ideas on the Internet, creators can directly seek financial support from users and are no longer bound to use traditional funding channels, such as investment by senior investors, bank loans, or application for venture capitals. Compared with traditional funding, crowdfunding not only makes funding easier but also enables the public to quickly learn the goal and content of a project initiated by its creator. Besides, through convenient online money collection channels, participants can solicit and collect funds or donations from funders across the world. According to the recent report of MarketStudyReport.com, the global crowdfunding market is valued approximately at 10.21 billion USD in 2018 and is expected to reach 28.77 billion USD by the end of 2025, growing at a compound annual growth rate of 16% between 2018 and 2025[1]. With the growth of crowdfunding platforms and projects, the factors that affect funders' backing intention become an issue that deserves research and practical attention.

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[1] https://apnews.com/Newswire/278cd583cea2d5d4582d07495eb9208c

The social cognitive theory (SCT) posits that individual factors, environmental factors, and behavior are reciprocally determined [Bandura 1986]. According to SCT [Bandura 1986], when individuals take action plans in response to various task needs, they are closely related to their environmental and personal intrinsic factors or abilities. Thus, this study adopts the SCT constructs in the course of developing a research model to investigate the effects of the individual and environmental factors on funders' backing intention.

For individual factors, self-efficacy is the core factor affecting decisions about behavior [Compeau & Higgins 1995]. Besides, prior studies of crowdfunding have found that funders' backing intention is motivated by rewards [Gerber & Hui 2013; Hobbs et al. 2016; Kuppuswamy & Bayus 2018; Ryu & Kim 2016]. In addition, previous studies indicate that empathy raises not only personal helping and prosocial behaviors but also donation intention [Basil et al. 2008; Batson 1998; Liu et al. 2018; Zhou et al. 2012]. Thus, we argue that personal empathy perception may influence one's financial support for a crowdfunding project. Moreover, since crowdfunding raises funds on the Internet, the factors related to the online platform will affect the participants' behavior of the crowdfunding project [Agrawal et al. 2014]. Previous studies have found that users' perception of website service quality is a determinant of their behavioral intention [Kuo et al. 2009]. Thus, we consider website service quality as the environmental factor of backing intention in this study.

This study aims at examining the effects of the individual and environmental factors on crowdfunding funders backing intention. To answer these questions, we propose a research model employing the SCT and use backing self-efficacy, rewards, and empathy as the individual factors, and website service quality as the environmental factor. To deeply understand the applicability of the proposed model across different backing experiences, we test the proposed model with two sub-samples (with and without backing experience). Continuing to the viewpoints of Kuo et al. [2019], the findings empirically confirm that backing self-efficacy, rewards, empathy, and website service quality have positive effects on backing intention. In the path analysis between samples divided by backing experience, rewards (*empathy*) have an insignificant effect on backing intention for those with (*without*) backing experience. These research findings contribute to the literature in terms of both theory and practices. This study offers a new theoretical understanding of the antecedents of funders' intentions on crowdfunding platforms. Moreover, this study not only enriches the existing literature in crowdfunding but also extends the scope of SCT applications and confirms its applicability for explaining backing intention in crowdfunding. For the practical implications, the results of this study can provide crowdfunding platform managers and project creators a new perspective on motivating users with different backing experience to pledge.

2. Theoretical Background and Hypothesis Development

2.1. Crowdfunding and Backing Intention

With the rapid development of the Internet and the growth of crowdsourcing, people can initiate a funding project online, allowing others to join the project by making donations or pledging money in exchange for a reward. In describing the relationship in a crowdfunding project, Agrawal et al. (2014) stated that the entrepreneurs, artists, and others who initiate projects or ventures play the role of "creators"; meanwhile, the investors, pre-buyers, and donors are labeled as "funders." Creators can collect a small amount of money from a large number of funders online without relying on the traditional funding approach [Belleflamme et al. 2014; Beaulieu et al. 2015; Bradford 2012; Mollick 2014]. This approach has been characterized as "potentially the most disruptive of all of the new models in finance" [Goldman Sachs 2015, p. 8][2]. Once the collected fund reaches a threshold amount, project creators have the resources to fulfill the proclaimed projects.

Based on the previous literature on crowdfunding, four kinds of business models are summarized [Bradford 2012; Simons et al. 2017]: (1) donation in which funders do not receive any reward; (2) rewards wherein funders will be offered a product or a symbolic reward; (3) lending (also called peer-to-peer lending) in which funders can receive interest and capital repayments; and (4) equity wherein funders can obtain shares with dividend or voting rights in return for their investment. For the different forms of crowdfunding, funders play different roles depending on the distinct model and their motivations. For example, in lending- or equity-based crowdfunding, funders are like investors; they invest in projects they find worthy of financial support and expect a financial return on their investment. In donation-based crowdfunding, funders are viewed as donors, and they give away money to support charitable or social welfare-seeking projects with no expectation of receiving anything in return. In reward-based crowdfunding, funders are more like consumers; they contribute small amounts of money to a project in exchange for a reward of a relative value [Gerber & Hui 2013; Hobbs et al. 2016; Kuppuswamy & Bayus 2018]. Zheng et al.

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[2] Goldman Sachs. 2015. "The Future of Finance - The Socialization of Finance, Part 3," retrieved September 7, 2017, from www.planet-fintech.com/file/167061/.

[2017] also indicated that the utilitarian and hedonic values determine funders' satisfaction from the reward-based crowdfunding projects. In Taiwan, most of the existing crowdfunding platforms are a reward-based model. Therefore, the focus of this study is on crowdfunding in a reward-based model.

Previous research on crowdfunding has suggested that the antecedents that affect the backing intention include rewards [Gerber & Hui 2013; Hobbs et al. 2016; Kuppuswamy & Bayus 2018; Ryu & Kim 2016], merely giving a hand [Gerber & Hui 2013; Ryu & Kim 2016], and being a member of the project (each project can be viewed as a temporary online community) [Burtch et al. 2016]. Wash and Solomon [2014] also revealed that some funders back a project because they feel good to do something right. Besides, project quality [Hobbs et al. 2016; Mollick 2014] and creativity [Davis et al. 2017], creators' passion [Hobbs et al. 2016], and integrity of the team's information [Boeuf et al. 2014; Colombo et al. 2015] are also pivotal to the success of a project, because these elements affect funders' trust in the project. In reward-based crowdfunding, social influence also plays an important role [Burtch et al. 2016; Kuppuswamy & Bayus 2018]. Researchers have attempted to explain and predict individual behaviors and indicate that an individual's decision to engage in a specified behavior is determined by their intention to perform the behavior [Fishbein & Ajzen 1976]. Moreover, behavioral intention is the most influential predictor of behavior [Ajzen 1991]. In a large number of studies on consumer behavior, researchers often use behavioral intention as a proxy for actual behavior [e.g., Venkatesh et al. 2003; Bock et al. 2005; Lu et al. 2010; Shiau & Chau, 2016]. Venkatesh et al. [2003] also pointed out that behavioral intention is the dominant factor in the use of information technology. Thus, we use backing intention as a proxy for backing behavior. Based on the literature on consumers' purchase intention [Bian & Forsythe 2012; Wang et al. 2013], this study defines crowdfunding backing intention as "one's willingness to back projects on a crowdfunding platform."

2.2. Social Cognitive Theory

Based on SCT, we propose a research model to explore antecedents affecting backing intention on crowdfunding platforms. SCT offers a sound theoretical background that has been extensively applied to explain individual behavior. This theory states that individual factors, environmental factors, and behavior are reciprocally determined in a triangulating manner [Bandura 1986]. In our research context, the backing intention is the dependent behavior, whereas website service quality is the environmental factor. As to individual factors, the core concept of SCT surrounds self-efficacy (i.e., one's confidence in his/her capability to take a certain action) and outcome expectation (i.e., one's expectation of the result from a certain action) [Bandura 1977; 1997]. In this study, we will discuss one's belief about his/her capability confidence to back projects on a crowdfunding platform and one's expectation of the outcome (rewards) of his/her financial support for the project. In addition, one's empathy perception and understanding of a crowdfunding project may also affect his/her financial support for the project. In summary, we propose backing self-efficacy, rewards, and empathy as individual factors that affect backing intention. In the following sections, we will review the literature related to the research variables of backing self-efficacy, rewards, empathy, and website service quality and develop hypotheses.

2.2.1. Backing Self-Efficacy

Self-efficacy refers to one's belief about his/her capability confidence to accomplish a given task [Bandura 1977; 1997]. In other words, it is the degree to which one is confident that he/she can achieve the given task. Based on the level of aggregation and stability over time and situations, self-efficacy beliefs can be classified into three types, namely, task-specific, domain, and general [Gibbons & Weingart 2001]. Task-specific self-efficacy is an individual's belief about his/her capability confidence to perform a specific task in a certain context. This type of self-efficacy is characterized by a shallow level of aggregation and stability. Meanwhile, domain self-efficacy refers to one's belief about his/her capability confidence to perform tasks in a specific domain (e.g., computer self-efficacy) [Compeau & Higgins 1995]. General self-efficacy is a belief that one's capability confidence can apply across different domains. This kind of belief is highly aggregated and stable. In crowdfunding, backing self-efficacy is a confident belief that one can back projects that he/she pays attention to. It is a kind of task-specific self-efficacy belief. To be more specific, backing self-efficacy is one's confidence in his/her capability to back a specific project on a crowdfunding platform.

Concerning the relationship between self-efficacy and behavior acts, self-efficacy is a determinant of intention and behavior. For example, computer self-efficacy has a positive effect on computer use [Compeau & Higgins 1995]; self-efficacy for donating to the IRO is positively related to donation intention [Cheung & Chan 2000]; knowledge sharing efficacy affects the use of electronic knowledge repositories [Kankanhalli et al. 2005]; consumers' purchasing self-efficacy has a positive effect on their buying intention and behavior [Pavlou & Fygenson 2006]; and an individual's system self-efficacy is positively related to employees' extended use of enterprise systems [Peng et al. 2018]. In the context of reward-based crowdfunding, Shneor and Munim [2019] pointed out that the individual's self-efficacy can enhance the backing intentions. Therefore, it can be inferred that people are willing to

back a crowdfunding project when they believe they have the financial ability to back the project. Thus, we propose Hypothesis 1.

H1: Backing self-efficacy has a positive effect on backing intention.

2.2.2.   Rewards

Outcome expectation is a judgment of the likely consequence of a certain behavior [Bandura 1977; 1997]. Conceptually, it is similar to perceived benefit or perceived value. Several studies have pointed out that outcome expectation is an important construct that can be used to explain and predict individual behavior [Hsu & Chiu 2004; Lim & Noh 2017]. It can be divided into three types: physical, social, and self-evaluative [Bandura 1997]. Physical outcome expectations are experiences of pain or pleasure resulting from behavior and the accompanying material losses and benefits. Meanwhile, social outcome expectations are the social approval or disapproval of the behavior produced in one's interpersonal relationships. Lastly, self-evaluative outcome expectations refer to the individual's anticipated feelings about having performed a behavior [Bandura 2004]. According to crowdfunding research, most funders expect to receive a reward after offering their financial support for a project [Gerber & Hui 2013; Hobbs et al. 2016; Kuppuswamy & Bayus 2018; Ryu & Kim 2016]. Therefore, we classify rewards as a physical outcome expectation.

Research evidence from various domains has suggested that reward is a determinant of behavior. For instance, when employees expect a reward for sharing knowledge, rewards will affect their attitude toward knowledge sharing [Bock et al. 2005]. Rewards can induce a higher intention to participate in online communities [Yen et al. 2011], promote online interactions among users [Hennig-Thurau et al. 2004; Rafaeli et al. 2007], and encourage consumer involvement in product development to make more contributions or attract more consumers [Füller 2006]. In addition, monetary rewards can attract several solutions submitted by solvers in the context of crowdsourcing [Zheng et al. 2014]. It is confirmed in many crowdfunding studies that rewards have a positive effect on backing behavior [Gerber & Hui 2013; Hobbs et al. 2016; Kuppuswamy & Bayus 2018; Ryu & Kim 2016]. Therefore, we propose Hypothesis 2 as follows.

H2：A reward has a positive effect on backing intention.

2.2.3.   Empathy

Empathy is a positive individual trait. It is one's perceptions to understand the motivations, values, and emotions of another [Salovey & Mayer 1990]. Empathy can be viewed from cognitive and affective perspectives [Mehrabian & Epstein 1972]. For the cognitive perspective, empathy is a cognitive process in which one assumes the role of another person and can understand and accurately predict the ideas, feelings, and behavior of another person [Dymond 1949]. Meanwhile, the affective empathy perspective stresses the emotional or affective component of empathy [Eisenberg 1995], such as the emotional response to the perceived emotional experiences of others [Stotland 1969] or the response to another's emotional state [Eisenberg 2000]. Therefore, the importance of empathy lies in its perception to shorten the social distance between people and promote an individual's social obligations [Aune & Basil 1994].

Basil et al. [2008] studied consumers' donations to charity and disaster relief and found that both empathy and self-efficacy are significantly positively related to donation intention. Batson [1998] pointed out that empathy promotes helping and prosocial behaviors in individuals. Zhou et al. [2012] also noted that empathy induces intentions to volunteer and donate and promotes tangible charitable behavior. The emergence of crowdfunding platforms allows both businesses and individuals an easier and faster way to fulfill their proposed ideas. Through the platforms, creators can effectively diffuse and express their creative ideas to win users' approval and further solicit their donations. Liu et al. [2018] also found that empathy is one of the key determinants for individuals' donation intention in charitable crowdfunding. Therefore, we infer that users' empathy perception can positively influence them to have the same emotional experience as the creator and further have a backing intention. Our third hypothesis is as follows.

H3：Empathy has a positive effect on backing intention.

2.2.4.   Website Service Quality

The increasing prevalence of the Internet has facilitated the rapid growth of crowdfunding. As a bridge between creators and funders, crowdfunding platforms are becoming more and more important [Zheng et al. 2014]. Crowdfunding platforms are designed for specific purposes, which differ to a certain extent from the purposes of general online shopping websites. Hence, how service quality plays a role in crowdfunding platforms should be an issue worthy of discussion. Service quality is the degree to which the service provided by the organization or a person meets or even transcends the service expected by customers [Parasuraman et al. 1985]. Parasuraman et al. [1988] developed the SERVQUAL model to evaluate the service quality of the retail industry, which consists of five dimensions, namely, tangible, responsiveness, reliability, assurance, and empathy. As the online environment has

become an increasingly common field for transactions, many studies have proposed their definitions and measurement scales for website service quality.

Website service quality refers to the degree to which the services provided by a website can effectively or sufficiently satisfy users' needs [Fassnacht & Köse 2007; Zeithaml et al. 2002]. The constituting dimensions of a website service quality scale may vary depending on the type of website. For instance, for information-based portal sites, Yang et al. [2005] proposed to measure their service quality along with the usefulness of the content, adequacy of information, usability, accessibility, and interaction. For e-commerce websites, Lee and Lin [2005] proposed a scale consisting of website design, reliability, responsiveness, trust mechanisms, and personalization. Meanwhile, Collier and Bienstock [2006] identified functionality, information accuracy, design, privacy, and ease of use to measure website service quality. Bauer et al. [2006] introduced a scale called eTransQual, which consists of functionality/design, enjoyment, process, reliability, and responsiveness. Moreover, Kuo et al. [2009] proposed four dimensions of website service quality: content quality, navigation, and visual design; management and customer service; system reliability; and connection quality. Based on the previous related studies, we make a summary of website service quality constructs, including content, navigation, interactivity, and system quality, among others in Table 1.

Table 1: Constructs Linked to Website Service Quality

Constructs	Quality dimensions	Reference
Content quality	Content quality	Kuo et al. [2009]
	Information accuracy	Collier and Bienstock [2006]
	Usefulness of content	Yang et al. [2005]
	Adequacy of information	Yang et al. [2005]
Navigation quality	Navigation and visual design	Bauer et al. [2006]; Collier and Bienstock [2006]; Kuo et al. [2009]; Lee and Lin (2005)
	Ease of use	Collier and Bienstock [2006]
	Usability	Yang et al. [2005]
Interactivity quality	Interaction	Yang et al. [2005]
	Management and customer service	Kuo et al. [2009]
	Responsiveness	Bauer et al. [2006]; Lee and Lin (2005)
System quality	Process	Bauer et al. [2006]
	Reliability	Bauer et al. [2006]; Lee and Lin (2005); Kuo et al. [2009]
	Accessibility	Yang et al. [2005]
Others	Enjoyment and Personalization	Bauer et al. [2006]; Lee and Lin [2005]
	Trust mechanisms	Lee and Lin [2005]
	Privacy	Collier and Bienstock [2006]

According to DeLone and McLean [1992], system quality refers to the measures of the information processing system itself; however, with the prevalent use of websites, Xu et al. [2013] found that system quality insignificantly influenced service quality. Their finding further indicated that the users believe that system quality is an essential requirement for service quality. Based on the above discussion, we exclude system quality in measuring website service quality in this study.

Many studies have stated that website service quality strengthens user satisfaction [Lee & Lin 2005; Yang et al., 2005] and even influences users' behavioral intention [Collier & Bienstock 2006; Fassnacht & Köse 2007] and purchase intention [Lee & Lin 2005]. Literature related to crowdfunding suggests that the values of the crowdfunding platform have a positive effect on the behavior of both creators and funders [Agrawal et al. 2014]. In the research context, we infer that higher website service quality can lead individuals to have a higher backing intention. Thus, we propose Hypothesis 4 as follows.

H4: Website service quality has a positive effect on backing intention.

3. Research Methodology
3.1. Measurement Development

All measurement scale items were derived from previous studies and adapted to the crowdfunding context. The backing intention was measured with four items adapted from Bian and Forsythe [2012] and Wang et al. [2013]. These four items aimed at capturing the extent to which respondents would intend to back projects on a specific

crowdfunding platform soon. In crowdfunding, backing self-efficacy is a task-specific self-efficacy belief. Three items adapted from Cheung and Chan [2000] and Kankanhalli et al. [2005] were used to capture one's confidence in his/her capability to back a specific project on a crowdfunding platform. This study focused on reward-based crowdfunding; thus, we classify rewards as a physical outcome expectation. Three items adapted from Bock et al. [2005] and Lee [1998] were used to capture the extent to which funders expect to receive a tangible product or gift after offering their financial support for a project. For empathy perception, three items adapted from Basil et al. [2008] were used to capture the extent to which funders have the same ideas and emotional experience as the creators. Website service quality is modeled as a second-order formative construct containing three first-order reflective constructs (content, navigation, and interactivity quality). Content quality was measured using three items adapted from Collier and Bienstock [2006], Kuo et al. [2009], and Yang et al. [2005]. Navigation quality was measured with three items adapted from Collier and Bienstock [2006] and Kuo et al. [2009]. Interactivity quality was also measured using three items adapted from Kuo et al. [2009] and Yang et al. [2005]. All of the measurement items used a seven-point Likert scale, anchored from strongly disagree (1) to strongly agree (7).

As the respondents were native speakers of Mandarin Chinese and the questionnaire was initially developed in English, a translation and back-translation procedure were conducted. To ensure the adequacy and clarity of each question and identify potential problems in the questionnaire, a pretest was conducted using five crowdfunding experts and ten graduate students who had experienced in crowdfunding platforms such as Kickstarter, Indiegogo, flying V, and zeczec. The process of pretesting improved the content validity of the survey instrument. The measurement items for the constructs are shown in Table 2.

Table 2: Measurement Items for the Constructs

Construct (abbreviation)	Indicator	Measurement	References
Backing intention (BI)	BI1	I am planning to back a project on the XYZ platform within the next three months.	Bian and Forsythe [2012], Wang et al. [2013]
	BI2	I want to back a project on the XYZ platform within the next three months.	
	BI3	I will try to back a project on the XYZ platform within the next three months.	
	BI4	I am very likely to back a project on the XYZ platform within the next three months.	
Backing self-efficacy (BSE)	BSE1	I am confident that I can back a project on the XYZ platform.	Cheung and Chan [2000], Kankanhalli et al. [2005]
	BSE2	I can afford the amount of money required to back a project on the XYZ platform.	
	BSE3	I believe that I can back a project on the XYZ platform.	
Rewards (RWD)	RWD1	I will back a project on the XYZ platform for the product offered by the project.	Bock et al. [2005], Lee [1998]
	RWD2	I will back a project on the XYZ platform for the limited souvenir offered by the project.	
	RWD3	I will back a project on the XYZ platform for the gift offered by the project.	
Empathy (EMP)	EMP1	I can imagine how the project creator feels from the project descriptions on the XYZ platform.	Basil et al. [2008]
	EMP2	I will put myself in the context of the project when browsing the project descriptions on the XYZ platform.	
	EMP3	I feel moved by the project after browsing the project descriptions on the XYZ platform.	
Website service quality -content quality (CQ)	CQ1	New projects are introduced continuously on the XYZ platform.	Collier and Bienstock [2006], Kuo et al. [2009], Yang et al. [2005]
	CQ2	XYZ platform offers a wide variety of projects.	
	CQ3	XYZ platform presents projects in a way that facilitates understanding of project descriptions.	
Website service quality -navigation quality (NQ)	NQ1	It is easy to browse and navigate between different pages on the XYZ platform.	Collier and Bienstock (2006), Kuo et al. [2009]
	NQ2	It has never happened to me that searching for needed information on different pages is difficult on the XYZ platform.	
	NQ3	I find the XYZ platform easy to use.	
Website service quality -interactivity quality (IQ)	IQ1	XYZ platform provides a "Q&A" function that allows me to interact with project creators conveniently.	Kuo et al. [2009], Yang et al. [2005]
	IQ2	XYZ platform provides "Project progress" information, making it easy for me to follow the project continuously.	
	IQ3	XYZ platform provides a "Facebook fan page," which can act as an alternative channel for users to interact with project creators.	

3.2. Survey Administration

An online questionnaire was administered, and participants were limited to users who had experienced browsing projects on any crowdfunding platform. Before entering the formal survey page, each participant is required to answer if they have ever visited any crowdfunding platforms. If yes, the system would present a formal questionnaire. In this questionnaire, participants had to indicate which platform they most frequently use and answer questions based on such a platform. If not, an ending page with a thank you message will be delivered to the participants because they do not qualify to take the survey.

Since the participants of this study must have browsing experience with any crowdfunding platforms to seek the generalizability of the findings, this study recruited voluntary participants via Facebook by employing chain-referral sampling. We also offered a coupon drawing as an incentive to increase participation willingness. The survey system was capable of recording cookies and accessing IP and time to detect repeated responses and invalid answers. The survey spanned four weeks and obtained a total of 221 valid responses, of which 55.2% are male and 44.8% are female. In terms of age distribution, respondents aged 19–25 years (38.0%) constituted the largest group, followed by those aged 26–30 years (26.2%). Most respondents had a college educational level (52.5%), and those

with a graduate school educational level formed the second largest group (43.4%). Most respondents had a monthly income below 20,000 NTD (37.1%) or 20,000–50,000 NTD (36.7%).

Further observing the sample demographic crowdfunding behavior, most respondents had a usage experience over one year (37.1%), followed by those with experience between four months and one year (32.1%). In terms of backing frequency, 51.1% have never backed any project, and 48.9% have accounted for a similar proportion of the sample. Among those who have backed a project before, the frequency of four times (15.8%) was dominant, followed by two times (11.3%). Finally, most of them had an average contribution amount of 1,001–5,000 NTD (21.2%), and those with an average contribution amount 500–1,000 NTD (19.9%) formed the second largest group. The abovementioned demographic statistics and crowdfunding funders' behavior are close to the investigation of the Pew Research Center (2016)[3], illustrating the data sampling in this study approximates to the current crowdfunding population in the USA.

4. Results and Discussions
4.1. Measurement Model Analysis

The reliability, convergent validity, and discriminant validity of the scale were tested using confirmatory factor analysis (CFA). Table 3 shows the cross-loadings, factor loadings, composite reliability (CR), and average variance extracted (AVE). As shown in Table 3, the factor loadings for all the constructs ranged from 0.786 to 0.927, which were above the 0.70 guideline, indicating satisfactory item reliability for the measures [Hair et al. 1998]. Furthermore, the CR values for the constructs ranged from 0.861 to 0.935, which exceeded the recommended level of 0.70, indicating adequate internal consistency [Bagozzi & Yi 1988; Nunnally 1978]. The AVE values also exceeded the suggested threshold value of 0.50, demonstrating the convergent validity of measures [Fornell & Larcker 1981].

Table 3: Cross loadings, CR, and AVE of the Measurement Model.

Construct	Indicator		BI	BSE	RWD	EMP	CQ	NQ	IQ	CR	AVE
BI	BI1		0.927	0.487	0.325	0.373	0.345	0.391	0.335	0.935	0.784
	BI2		0.925	0.527	0.340	0.443	0.394	0.423	0.342		
	BI3		0.874	0.511	0.305	0.358	0.331	0.384	0.240		
	BI4		0.811	0.466	0.387	0.353	0.330	0.286	0.293		
BSE	BSE1		0.529	0.866	0.354	0.479	0.433	0.416	0.365	0.898	0.747
	BSE2		0.413	0.840	0.288	0.342	0.356	0.271	0.267		
	BSE3		0.505	0.886	0.370	0.308	0.406	0.338	0.221		
RWD	RWD1		0.349	0.417	0.786	0.361	0.485	0.353	0.275	0.893	0.736
	RWD2		0.313	0.285	0.909	0.310	0.300	0.318	0.308		
	RWD3		0.315	0.298	0.875	0.359	0.299	0.376	0.339		
EMP	EMP1		0.351	0.360	0.331	0.861	0.482	0.382	0.332	0.899	0.789
	EMP2		0.385	0.352	0.329	0.875	0.470	0.391	0.258		
	EMP3		0.385	0.427	0.385	0.860	0.488	0.388	0.341		
WSQ	CQ	CQ1	0.359	0.407	0.347	0.477	0.907	0.468	0.385	0.911	0.774
		CQ2	0.364	0.372	0.333	0.466	0.913	0.479	0.428		
		CQ3	0.323	0.441	0.443	0.514	0.814	0.660	0.449		
	NQ	NQ1	0.424	0.393	0.429	0.417	0.621	0.897	0.443	0.887	0.723
		NQ2	0.338	0.235	0.256	0.258	0.342	0.801	0.227		
		NQ3	0.313	0.372	0.338	0.439	0.560	0.850	0.459		
	IQ	IQ1	0.271	0.298	0.294	0.336	0.383	0.346	0.811	0.861	0.675
		IQ2	0.285	0.325	0.301	0.326	0.460	0.424	0.872		
		IQ3	0.292	0.183	0.290	0.213	0.332	0.355	0.779		

Notes: The gray color value provided is the factor loading value.
BI: backing intention; BSE: backing self-efficacy; RWD: rewards; EMP: empathy; WSQ: website service quality; CQ: content quality; NQ: navigation quality; IQ: interactivity quality

Discriminant validity was assessed using three criteria. First, when the loading of each measurement item on its assigned construct is higher than its loadings on all other constructs and the cross-loading differences are much

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[3] http://www.pewinternet.org/2016/05/19/collaborative-crowdfunding-platforms/

higher than the suggested threshold of 0.1 [Gefen & Straub 2005], the scales will be considered having sufficient discriminant validity [Chin 1998]. Second, the construct intercorrelation should be less than 0.71 to determine whether the constructs have significantly less than half of their variance in common [MacKenzie et al. 2011, p324]. Third, the square root of the construct's AVE should be larger than the correlations between the construct and all other constructs in the model [Fornell & Larcker 1981]. Table 3 shows that the differences between loadings on assigned constructs and those on other constructs are higher than the threshold of 0.1. Moreover, Table 4 shows the correlations among constructs and the square root of the AVE; all correlations are less than the 0.71 threshold. Further, comparing the square root of the AVE with correlations among the constructs indicates that each construct is more closely related to its own measures than to those of the other constructs, which supports discriminant validity. Overall, the evidence of good reliability, convergent validity, and discriminant validity indicates the adequacy of the measurement model.

We further examined the variance inflation factors (VIF) to assess the multicollinearity problem. A regression analysis that employed backing intention (BI) as the dependent variable and the other six variables as independent variables was performed. The VIF values of backing self-efficacy, rewards, empathy, content quality, navigation quality, and interactivity quality are 1.419, 1.375, 1.600, 1.998, 1.650, and 1.403, respectively, which are well below the suggested threshold of 3.3 [Diamantopoulos & Siguaw 2006]. Hence, the multicollinearity problem is not a concern for our data.

Table 4: The mean, Standard Deviation and Inter-Variable Correlations

Construct	Mean	Std. Dev.	Construct						
			BI	BSE	RWD	EMP	CQ	NQ	IQ
BI	4.804	1.208	**0.885**						
BSE	5.468	0.974	0.559	**0.864**					
RWD	5.142	1.207	0.380	0.379	**0.858**				
EMP	5.543	0.859	0.430	0.437	0.397	**0.888**			
CQ	5.727	0.885	0.395	0.459	0.407	0.551	**0.880**		
NQ	5.462	0.991	0.415	0.380	0.392	0.428	0.575	**0.850**	
IQ	5.457	0.868	0.345	0.323	0.362	0.350	0.472	0.430	**0.822**

Notes: Diagonal elements show the square root of the average variance extracted (AVE).
BI: backing intention; BSE: backing self-efficacy; RWD: rewards; EMP: empathy; CQ: content quality; NQ: navigation quality; IQ: interactivity quality

Common method bias (CMB) occurs when all data are self-reported and collected via the same questionnaire during the same period using a cross-sectional research design. To test for CMB, we employed Harman's one-factor test [Podsakoff et al. 2003]. The results showed that more than one factor exists and that the first factor accounted for 27.868% of the variance, lower than the 50% threshold value. After conducting Harman's one-factor test, another test of CMB that compared correlations among the constructs was conducted following a procedure suggested by Pavlou et al. [2007]. The highest correlation in the correlation matrix (Table 3) is r=0.575, whereas evidence of common method bias ought to have brought about greatly high correlations (r >0.90). Consequently, we thus conclude that CMB is not a major concern in our study.

4.2. Structural Model Analysis

This study employed the structural equation modeling (SEM) method to test the research model and hypotheses. When using SEM, two types of methods, namely, covariance-based techniques (CB-SEM) and variance-based partial least squares (PLS-SEM), can be implemented. This study adopted a PLS-SEM approach because of the following advantages. First, PLS-SEM using component-based estimation, maximizing the variance explained in the dependent variable, does not require multivariate normality of the data and is less demanding on sample size [Chin 1998; Gefen et al. 2000]. Second, PLS-SEM is most suitable for models with formative constructs [Chin et al. 2003; Hair et al. 2011], which is the case in this study. Third, although CB-SEM is regarded as more appropriate for theory confirmation, PLS-SEM is the preferred method for exploratory research, existing theory extension, and theory development [Chin et al. 2003; Gefen et al. 2000; Hair et al. 2011]. This study is exploratory research, and the primary research objective is exploring the antecedents of backing intention in crowdfunding. Thus, PLS-SEM was appropriate for the current study. The SmartPLS 2.0 software package was used for our estimation. The bootstrapping procedure was implemented to provide reassurance that the results are not sample-specific by using repeated random samples drawn from the data. In this instance, the bootstrapping procedure was repeated until it reached 500 bootstrap samples [Chin 1998].

We first tested the model with the entire sample consisting of 221 responses. The results are presented in Figure 1. The testing results support all the hypotheses (H1–H4). Backing self-efficacy has a significantly positive effect on backing intention ($\beta=0.387$, t=5.583, $p < 0.001$), suggesting that funders with higher backing self-efficacy will be more willing to back projects on crowdfunding platforms. This finding echoes a similar finding of previous research that "consumers' purchasing self-efficacy is positively related to their purchase intention" [Pavlou & Fygenson 2006]. Besides, the backing intention is significantly positively affected by rewards ($\beta=0.097$, t=1.772, $p < 0.05$), indicating that providing tangible rewards can increase users' backing intention on crowdfunding platforms. This finding is consistent with evidence obtained by several qualitative observation-based studies [Gerber & Hui 2013; Hobbs et al. 2016; Kuppuswamy & Bayus 2018; Ryu & Kim 2016]. It is confirmed that empathy has a significantly positive effect on backing intention ($\beta=0.134$, t=2.195, $p < 0.01$), implying that the better that funders understand the ideas behind a project and share the emotional experience of its creator, the higher is the funders' backing intention. Results also indicate that website service quality has a significantly positive effect on backing intention ($\beta=0.163$, t=2.166, $p < 0.01$), suggesting that funders are more willing to back a project when they perceive higher service quality on the website. The above four variables, namely, backing self-efficacy, rewards, empathy, and website service quality, explain the 39% variance (R^2) in backing intention.
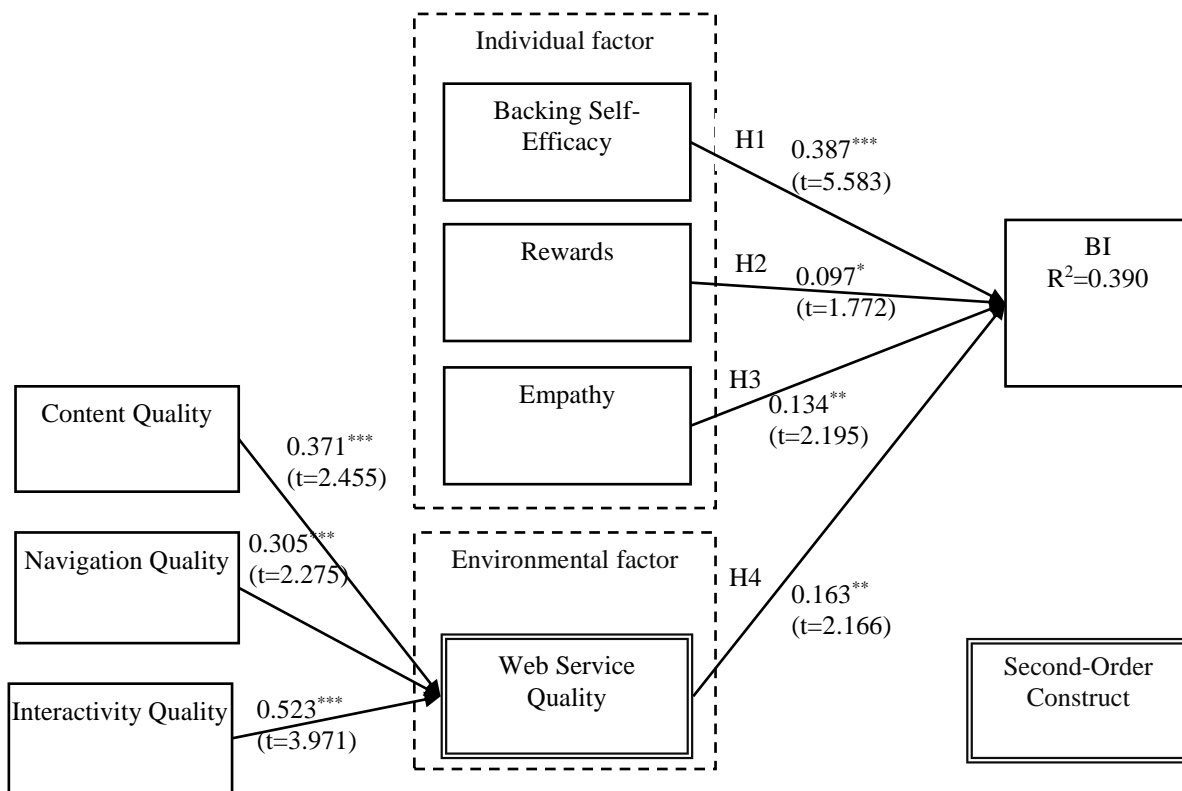
Note: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; ns: non-significant
Figure 1: Results of Path Analysis (All Samples, n=221)

The participants of this study must have had browsing experience with any crowdfunding platforms, but not every participant has actual backing experience. For those with or without real backing experience, the key antecedents affecting backing intention may vary. To more deeply understand the applicability of the proposed model across different backing experiences, we divided the 221 valid responses by actual backing experience into two groups: one with backing experience (108 respondents) and one without (113 respondents). Then, we tested the proposed model with these two sub-samples respectively. After dividing participants into two groups, this study first conducted one-way ANOVA to examine the differences between the mean of the research variables among those who have crowdfunding contributing behavior (i.e., with backing experience) group (n=108) and those who have not (i.e., without backing experience) group (n=113). Table 5 shows the mean and standard deviation of constructs for with/without groups and the summary of the ANOVA. The t-test results in Table 5 show that those who have had real crowdfunding contributing behavior (n=108) demonstrate marginally significant higher mean value of reward

and significantly higher mean values of the other four research constructs (backing intention, backing self-efficacy, empathy, and website service quality) than those who have not (n=113).

Table 5: Mean and Standard Deviation of Constructs for with/without Groups and the Summary for the ANOVA.

Construct	With backing experience (n=108)		Without backing experience (n=113)		t-value	p-value
	Mean	Std.	Mean	Std.		
BI	5.113	1.178	4.509	1.167	3.833***	0.000
BSE	5.784	0.792	5.165	1.036	4.970***	0.000
RWD	5.296	1.227	4.994	1.175	1.871+	0.063
EMP	5.685	0.812	5.407	0.885	2.432*	0.016
WSQ	5.711	0.698	5.393	0.759	3.236***	0.001

Notes: + $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$
BSE: backing self-efficacy; RWD: rewards; EMP: empathy; WSQ: website service quality; BI: backing intention

We further observed the path analysis results from these two sub-samples (Table 6). First, the results from those with actual backing behavior support all the proposed hypotheses, except for H2. The unsupported H2 reflects that tangible reward ($\beta=0.079$, t=1.266, p > 0.1) is not a significant factor affecting backing intention. According to Forbes (2014)[4], a successful crowdfunding campaign offers intangible rewards to funders. Thus, for most people who back crowdfunding projects, receiving a tangible reward may not necessarily be a primary driver; this is probably the reason why H2 is not supported. Future researchers can further divide rewards into tangible and intangible rewards to explore the effects of different reward types on funders. According to path coefficients, we find that backing self-efficacy is the primary factor affecting backing intention ($\beta=0.247$, t=2.778, p < 0.01), whereas empathy ($\beta=0.212$, t=2.567, p < 0.01) and website service quality ($\beta=0.211$, t=2.001, p < 0.05) have a similar effect on backing intention. In the overall model, backing self-efficacy, empathy, and website service quality explain the 33.3% variance (R^2) in backing intention.

The path analysis results from those without actual backing experience (n=113) supported H1 and H2, marginally supported H4, and did not support H3. The unsupported H3 reflects that empathy ($\beta=0.065$, t=1.020, p > 0.1) is not a primary factor affecting backing intention. A possible explanation as to why H3 is not supported can be found in the study of Kuppuswamy and Bayus [2018], which states that many potential funders do not contribute to a project that has already received much support because they assume that others will provide the necessary funding. Under such a diffusion of responsibility, it would lessen ones' empathy to a crowdfunding project.

Judging by path coefficients, backing self-efficacy is the dominant factor affecting backing intention ($\beta=0.436$, t=4.982, p < 0.001), whereas reward ($\beta=0.153$, t=2.164, p < 0.01) and website service quality ($\beta=0.142$, t=1.564, p < 0.1) have a similar effect on backing intention. It would be a useful sign of how to raise one's perceived self-efficacy in backing the crowdfunding project, which will generate this efficacy to potential contributing behavior. In the overall model, backing self-efficacy, reward, and website service quality explain the 40.3% variance (R^2) in backing intention.

Table 6: Hypothesis Test Results for with/without Groups.

Group	Hypotheses	Path	Coefficient	t-value	Results
With backing experience (n=108)	H1	BSE→BI	0.247	2.778**	Support
	H2	RWD→BI	0.079	1.266	No support
	H3	EMP→BI	0.212	2.567**	Support
	H4	WSQ→BI	0.211	2.001*	Support
Without backing experience (n=113)	H1	BSE→BI	0.436	4.982***	Support
	H2	RWD→BI	0.153	2.164**	Support
	H3	EMP→BI	0.065	1.020	No support
	H4	WSQ→BI	0.142	1.564+	Marginally support

Notes: + $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$
BSE: backing self-efficacy; RWD: rewards; EMP: empathy; WSQ: website service quality; BI: backing intention

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[4] https://www.forbes.com/sites/cameronkeng/2014/06/06/successful-crowdfunding-campaigns-dont-give-tangible-rewards/#62b971516eda

For project creators to make better strategies based on backing experiences, after examining the differences in model results between the two sub-samples, we further explore the path coefficient differences between the two sub-samples (with/without backing experience). Table 7 shows the differences in path coefficients between the two groups. For those without backing experience, we had two potential findings: (1) The path coefficient between backing self-efficacy and backing intention ($\beta=0.436$) is higher compared with the group with backing experience ($\beta=0.247$). For project creators, this suggests that increasing users' backing self-efficacy helps induce the backing intention among those without backing experience. (2) The effect of rewards on backing intention ($\beta=0.153$) is higher compared with the group with backing experience ($\beta=0.079$), which explains that for users without backing experience, rewards can still act as an incentive to promote backing intention.

Meanwhile, from the group with backing experience, we also obtained two potential findings. (1) The effect of empathy on backing intention is far higher in this group ($\beta=0.212$) than in the group without backing experience ($\beta=0.065$), which explains that empathy can be a critical variable in distinguishing people with backing experience from people without. (2) Website service quality has a significantly higher effect on backing intention in this group ($\beta=0.211$) than in the group without backing experience ($\beta=0.142$), which suggests that users with backing experience also perceived higher website service quality.

Table 7: The Differences in Hypothesized Relationships between the with/without Groups.

Path		With Backing Experience (n=108)	Without Backing Experience (n=113)	Difference	t-value
		Path coefficients (standard error)	Path coefficients (standard error)		
H1	BSE→BI	0.247 (0.106)	0.436 (0.093)	-0.189	17.380***
H2	RWD→BI	0.079 (0.086)	0.153 (0.073)	-0.074	8.326***
H3	EMP→BI	0.212 (0.083)	0.065 (0.064)	0.147	17.926***
H4	WSQ→BI	0.211 (0.109)	0.142 (0.095)	0.069	6.077***

Notes: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$
BSE: backing self-efficacy; RWD: rewards; EMP: empathy; WSQ: website service quality; BI: backing intention

5. Conclusion and Implications

In this paper, we empirically explore factors affecting backing intention on crowdfunding platforms from the perspective of SCT. First, our model testing results confirm the validity of the proposed model, and all the four dependent variables have a significantly positive effect on backing intention. Second, among these variables, backing self-efficacy has the highest path coefficient with backing intention, suggesting that backing self-efficacy is the most critical predictor of backing intention in the proposed model. It also explains that higher backing self-efficacy beliefs can lead to higher backing intentions on crowdfunding platforms. Third, when funders have a higher outcome expectation, such as receiving a tangible product or gift, or when they have empathy for the project creator, they will also be more willing to back the project. Finally, the more that platform services (i.e., content quality, navigation quality, and interactivity) can effectively or sufficiently satisfy users' needs, the more that users are likely to back projects on the platform.

In the analysis of differences between samples divided by backing experience, we obtained two potential findings from the group with backing experience: (1) The mean value of empathy is significantly higher among users with backing experience, and so is the path coefficient between empathy and backing intention. It explains that empathy is a critical variable for differentiating users by backing experience. (2) Users with backing experience also tend to perceive higher service quality of crowdfunding platforms. From users without backing experience, we also obtained two potential findings: (1) backing self-efficacy has the highest effect on backing intention. For project creators, this finding implies that proper pledge options can effectively improve users' self-efficacy and motivate users without backing experience to pledge. (2) For this group of users, rewards contribute to a certain amount of appeal of a project. Hence, project creators can offer tangible rewards as an incentive to induce the backing intention in users without backing experience. Based on the research results, we propose the theoretical and practical implications, limitations, and suggestions for future research.

5.1.   Theoretical Implications

Different from previous crowdfunding research, this study offers the following several important theoretical implications. First, we adopt the SCT constructs in the course of developing a research model to explore the antecedents of backing intention on crowdfunding platforms. The current study offers a new theoretical understanding of the antecedents of funders' intentions on crowdfunding platforms. It contributes to the literature by

extending the scope of application of SCT and confirm its applicability for explaining backing intention in crowdfunding. Second, our results indicate that individual factors (i.e., backing self-efficacy, rewards, and empathy) and environmental factor (i.e., website service quality) all have a positive effect on behavior (i.e., backing intention), explaining the 39% variance in backing intention. Our results validate the finding of previous studies based on the qualitative observation that reward is one of the factors affecting backing intention [Gerber & Hui 2013; Hobbs et al. 2016; Kuppuswamy & Bayus 2018; Ryu & Kim 2016]. Moreover, the proposed model clearly shows the antecedents of backing intention and offers a new perspective for crowdfunding research. Third, this study examines the differences in model results between the two sub-samples (with/without backing experience) and explores the differences in hypothesized relationships between the two sub-samples. The findings not only provide an in-depth understanding of the applicability of the proposed model across different backing experiences but also offer project creators and crowdfunding platform operators a new perspective on motivating users with different backing experience to pledge.

5.2.   Practical Implications

The first question that probably comes to the project creators' minds before proposing a project is why do people intend to back crowdfunding projects? Our results indicate that higher backing self-efficacy, perceived rewards, empathy, and website service quality can all lead to higher backing intentions. The findings of this study offer the following new practical meanings to facilitate understanding of the operational strategies on crowdfunding platform managers and project creators.

First, our results show that when funders have higher confidence to afford the amount of money required to back a project on a crowdfunding platform, the more likely they are to back the projects on the platform. The same finding can be obtained from users with and without backing experience. Our analysis further reveals that the predicting power of backing self-efficacy for backing intention is even higher among users without backing experience. As to the suggested contribution amount, our survey results show that most respondents offer an average amount of 1,001–5,000 NTD, followed by those giving away an amount of 500–1,000 NTD. To increase users' backing self-efficacy beliefs, creators can offer pledge options of a smaller amount to motivate those without backing experience to back the project. This strategy can turn more users without backing experience into actual funders.

Second, results show that when funders have a higher expectation of the tangible rewards for their donation, they will be more willing to offer their financial support. Besides, especially for the group without backing experience, tangible rewards have a greater appeal. Therefore, project creators are advised to offer funders a tangible product or any tangible reward in return. Tangible rewards can be a hand-written thank you letter, a gift, or any product derived from the project. For the group with backing experience, how to take the incentive to the next level, from tangible rewards to intangible rewards, is an issue worthy of further discussion.

Third, potential funders show a higher backing intention when they have higher empathy for project ideas. In the group with backing experience, empathy has a significant effect on backing intention. Empathy can be a critical factor that arouses continued backing intention in users with backing experience. Thus, when preparing a project's description, project creators are advised to demonstrate their passions and compellingly articulate their creative ideas. They should endeavor to influence potential funders to identify with them, approve of their ideas, and then financially support the project.

Finally, potential funders' backing intention may increase with the degree to which the crowdfunding website's services effectively or sufficiently satisfy users' needs. Website service quality encompasses content quality, navigation quality, and interactivity. Based on these findings, we suggest that crowdfunding platform operators regularly update the website content, including projects or other related information. Besides, they should also focus on the improvement of website navigation design and user experiences. The final aspect of improving is interactivity. For instance, crowdfunding platforms can provide a message board or a discussion forum to facilitate interactive discussions between funders and creators, and between funders. They can also be modified into a community-based website, allowing more people to propose their suggestions or questions and exchange opinions with others. It can benefit not just a single project but all the projects created on the platform. Crowdfunding platforms should not function simply as a platform for displaying projects. Instead, they should collect and utilize the collective power and wisdom from a larger group of people to make the raised funds more meaningful.

5.3.   Limitations and Future Research

Despite our effort to conduct this study carefully, this study has several limitations. First, our survey was conducted only among users in Taiwan. As crowdfunding platforms are rapidly growing across the world, future researchers can obtain samples from foreign funders and compare findings from different cultural backgrounds. Second, we offered coupons drawing as an incentive for recruiting more participants to complete the survey. This

incentive, even indirectly, could attract individuals interested in rewards. However, this study has clarified that the rewards are returns in the crowdfunding project, and the coupon incentives are a way to increase subjects recruiting. Future studies employing the incentives should be careful about the possible impact of the incentives on the responses to the questionnaire.

Third, in our conclusion, we suggest crowdfunding platform operators to keep their websites updated continuously and encourage the development of new projects. The backing intention may vary by project type; hence, future researchers can also examine the moderating effect of project type on the relationship between individual/environmental factors and backing intention. Moreover, the ways how the project is described may affect backing intention. Future researchers can use different project description ways (e.g., framing effects) or use particular campaigns such as cause-related marketing to explore their effects on backing intention. Finally, backing intention can also be discussed from a longitudinal perspective to examine how behavioral intention may reciprocally determine individual and environmental factors.

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