

# Moderating Effects of Customer Co-creation and New Product Performance in the Travel Industry

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**Abstract**—Recently, it has been proposed that customers, in particular lead users of a product or service that co-create new products/services may enhance the success of those products/services. However, some research does not support this idea. Therefore, the present study re-examined this notion in the Taiwan travel industry. Well-known travel bloggers can be considered both lead users and co-creators of specified trip itineraries (here, specified trip itineraries) developed by travel agencies. A literature review, observations of the interactions among bloggers and their readers, and interviews of bloggers and managers of travel agencies are used to explore moderating factors of the effects of product co-creation on product performance; hierarchical regression analysis was used to determine the influence of these factors. The results indicate that the relationship between customer co-creation and the s new travel products performance is contingent upon the moderating effects of organizational culture and communication quality.

## I. INTRODUCTION

In a business environment with rapid global economic growth and vigorous competition, it is becoming more important for companies to know how to develop new products that meet consumers' needs. Previous studies integrated the concepts of open innovation and consumer participation to develop products that are more in line with consumers' needs and enhance enterprises' competitiveness during the stages of idea generation and product design and development [1-7]. In addition, Von Hippel [8, 9] proposed that managers should actively seek "lead users" to help develop new products, and considered [10] such lead users "frontier consumers" whose participation contributes to product innovation and commercialization. Morrison et al. [11] also asserted that lead users have a better understanding of market trends than general consumers.

However, the results of previous studies on the performance of new products created with consumer interaction remain controversial. Many researchers believe that consumer interaction helps ensure the success of innovations (e.g., [12,13]), but other studies have concluded that consumer interaction can be ignored because consumers cannot express their actual needs to businesses (e.g., [14,15]). Magnusson et al. [16] further pointed out that ideas generated by consumer participation in service innovation are original but unproductive. In studies of consumer participation in new product/service development, some researchers concluded that this approach cannot lead to the development of successful new products due to consumers' limited imagination [17, 18] or because the closeness with consumers negatively impacts the development of "breakthrough"

products [19]. Therefore, the present study examined what moderating factors may affect the relationship between product/service co-creation with lead users' and the performance of those new products and services.

Past studies have indicated that clues that consumers receive from the Internet influence their buying behavior (e.g., [20-23]). Nonaka [24] proposed that mutual trust between members of an organization helps to create an atmosphere of knowledge sharing. Abrams, Cross, Lesser and Levin [25] considered blogs a knowledge-sharing platform for bloggers, and it is believed that trust among bloggers contributes to knowledge sharing [26]. From the viewpoint of experiential marketing, a blog is a social networking tool. User experience and the sensory, affective, creative, cognitive, lifestyle, and social-identity aspects [27] of blogs can help enterprises to communicate product value. Hence, many enterprises are beginning to hire popular bloggers to try their products and post articles on their user experiences on their blogs to accomplish experiential marketing. Other enterprises manage their own blogs or interact with consumers on Facebook. Taiwan's travel agencies have noticed this stream of influence (e.g., Lion Travel Service Co., Ltd) and have begun working with well-known travel bloggers to design new tourism products [28]. These bloggers also have their own Facebook accounts with many followers, and they seem to possess the characteristics of lead users. Travel agencies have begun to co-create new tours/travel products with these bloggers in specific areas (i.e., music, architecture, etc.) to provide valuable, higher-quality products to customers. These well-known travel bloggers possess the characteristics of lead users. Therefore, we selected this kind of tour as a case study.

The remainder of this paper is organized as follows. Section II describes the literature and hypotheses for the study. Section III describes the research method, and Section IV provides the results of an empirical analysis. Section V presents the results and discussion.

## II. LITERATURE REVIEW AND HYPOTHESIS

### A. Co-creation and New Product

The of product development is usually evaluated using multiple criteria. It is generally understood that NPD performance depends on efficiency, effectiveness [29,30], and product innovativeness [29]. These three constructs are different and represent trade-offs during new product management. Efficiency is associated with development time and development cost [29] while effectiveness is related to financial performance and product quality [30]. Product innovativeness is the degree to which the product being

developed is new to the company and new to the market [31]. While efficiency and effectiveness require developers to rationalize and coordinate, as well as reduce repetitive procedures, product innovativeness requires flexibility, risk taking, and tolerance to mistakes during cooperative endeavors [29]. The concept of NPD was proposed in 1950 [32]. Initially, most research was conducted on physical goods, which were the main basis of the world economy. However, since 1980, global economic activities have progressively shifted from manufacturing to service providing, and thus a sizable body of literature has started to emerge that highlights service development and service marketing as separate from tangible products [33, 34]. Increasingly, service-oriented enterprises are inviting consumers to co-create new services [35]. Past studies have suggested that when consumers participate in the development of new products or services, it allows enterprises to understand consumer demands and therefore reduce the uncertainty of bringing new products to market [34], improve the value of their services, strengthen their professionalism [36], and/or improve product quality [37]. Kaulio [4], Nambisan [32], and Lundkvist and Yakhlef [3] pointed out that consumer participation in early stages of NPD is important, both in theory and in practice. Nambisan [32] also pointed out that consumer participation in NPD can have a positive influence, either in the generation of innovative ideas during testing or in the continuing improvement of new products. Zhang and Chen [33] proposed a consumer participation chain model and stated that, when consumers participate in a series of co-creation activities, their efforts can be transformed into new abilities for an enterprise. Nambisan [32] found that the successful transfer of consumer and supplier knowledge can enhance enterprise capability. Song et al. [34] further pointed out that the stronger the involvement of consumers in NPD, the greater the enterprise's competitive advantage. Huang and Yen-Ju [38], from the view of resource dependency and environmental contingency, believed that, regardless of environmental variables, co-creation is beneficial to the performance of a new product. Therefore, we theorized that a higher level of consumer participation in NPD would lead to better NPD performance. Hence:

**H1:** The greater the degree of involvement of well-known bloggers in co-creating a new travel product, the better the performance of that new travel product.

#### *B. Moderating Effect: Organizational Culture*

Some researchers [39-41] defined organizational culture as the shared values, beliefs, and cognitions of organization employees. Gupta, Iyer, and Aronson [42] believed that organizational culture involves openly motivating employees to integrate their individual abilities into the organization knowledge through learning, knowledge creation, and sharing. A strong organizational culture will strengthen inter-organizational cooperation, synchronize the goals of an organization and its members, and inspire employees to work

hard [43]. Without a strong organizational culture, each functioning unit of an organization may provide different solutions for the same problem [44], resulting in a time-consuming process and a greater likelihood of misunderstandings [45]. Von Glinow et al. [46] believed that an employee incentive-and-reward system would strengthen performance, and a goal-oriented culture would help organizations to improve performance and motivate employees to work hard [47]. Therefore, a strong organizational culture improves cooperation across functional departments and increases the success of new products [48]. Tapscott and Williams [49] considered a good organizational culture to be essential for successful co-creation between enterprises and consumers. Cooperation between travel agencies and bloggers is similar to cooperation across functional departments; thus we assume:

**H2:** Organizational culture has a positive effect on the relationship between bloggers who co-create with travel agencies and new travel product performance.

### III. RESEARCH METHOD AND PROPOSITION

In this study, we adopted both qualitative and quantitative approaches. We first adopted an observation approach: We observed the Web sites of travel agencies to become familiar with new travel products/tours and also the Facebook pages and blogs of well-known travel bloggers to understand their approaches to their blogs and interactions with followers. Then we further adopted an interview approach: we interviewed managers and travel products developers of travel agencies who had been co-creating with famous bloggers in specific areas (music, architecture, etc.) to identify potential moderating factors. In addition, we identified hypotheses from the literature. Therefore, we established our framework based on the literature and interview transcripts, created a questionnaire to collect data from travel product designers, and used hierarchical regression analysis to test the hypotheses.

#### *A. Case Interviews*

To better understand how bloggers co-create new tours, we conducted face-to-face in-depth interviews to understand the current means of interaction, agencies' views on co-creation, and the moderating factors that affect the relationship between blogger/travel planner co-creation of new travel products and the performance of those products.

First, we finalized the content for the initial interview by referring to our research questions, observations, and review of the literature. Questions for follow-up interviews were designed to complement previous interviews, i.e., supply any missing information. Through the interviews, we identified some important moderating effects of the relationship between co-creation and NPD performance. Before the interviews actually took place, we sent e-mails to the interviewed enterprises to familiarize the interviewees with the content of the planned interviews. This allowed the

TABLE 1 PROFILES OF INTERVIEWEES.

Date of Interview	Code	Date-code	Department	Position
2013/01/23	A	1-A	Marketing Department	Deputy Director
2013/02/01	B	2-B	Community Development Department	Director
2013/03/15		3-B		Blogger
2013/02/01	C	2-C	Internet Media Department	Director
2013/05/10		4-C		
2013/03/15	D	3-D	Theme Tour Department	Manager
2013/03/15	E	3-E	Community Development Department	Senior Director
2013/05/10		4-E		
2013/6/7	F	5-F	Tour Department	Director
2013/05/22	G	6-G	Tour Department	Manager
2013/06/07	H	5-H	Tour Department	Tour planner Blogger

interviewed enterprises to select appropriate interviewees and helped them to answer questions efficiently and effectively during the in-depth interviews, hence improving the quality of the interviews.

We consulted 8 senior managers of travel agents, who were expert travel executives overseeing the co-creation of new products, and two of them are famous bloggers, who had been involved in the co-creation of new products. The senior managers were all ranked as deputy managers, deputy directors, or higher. Therefore, they all had a considerable degree of understanding of the participation of bloggers in product design and had considerable experience in this field. Table 1 provides the basic information on these interviewees.

*B. Proposition: Moderating Effect*

**1) Communication Quality**

Communication has been defined as “the exchange of information, transfer of opinions” [50], and “the formal and informal sharing of meaning and timely information between firms” [51]. Hendriks [52] believed that knowledge sharing is a form of communication and constitutes, at a minimum, the relationship between two parties wherein one party has mastered knowledge and the other requires knowledge. In other words, knowledge sharing is a transfer of knowledge between a source and a receiver and can be treated as a dyadic exchange [53]. Nonaka and Takeuchi [54] pointed out that knowledge sharing is the interactive process of sharing implicit and explicit knowledge, and that the result of such interaction is knowledge innovation. Hence, knowledge sharing can be deemed learning that allows the other party to take effective actions. Thus, when the members of an organization gain valuable and useful knowledge – or even proprietary knowledge (i.e., knowledge owned by a specific enterprise) – from others, they are conducting knowledge sharing. As Senge [55] proposed, true knowledge sharing is not about what is given to others but what is gained from others. Inkpen [56] considered that the interaction between partners in an alliance, i.e., the quality of mutual communication, results in the exchange of mutual information. When the members of an organization are highly willing to share knowledge, this means that the knowledge provider is willing to share related knowledge and the knowledge demander is willing to learn the shared knowledge;

this leads to better communication quality. This high degree of openness toward knowledge sharing has a positive effect on the time to develop and complete a new product [57]. In addition, Interviewee A stated that “each party does not have the counterparty’s professional knowledge; it required continuous communication.” Interviewee G stated “When the experts travel to the same place again, they share their experiences with our designers or planners and suggest revisions to the itinerary.” Interviewee G said “the quality of communication of bloggers and designers affected the success of product development; most of the time, the bloggers are hard to communicate with.” Interviewee E said “the itinerary is codesigned with the experts and the travel planners [t\_p\_], therefore, their communication will affect the quality of the product.” Interviewee D stated “the bloggers understand their fans, therefore, we focus on their preferences to codesign the itinerary. Therefore, when they co-create the new travel product, if they are willing to share their knowledge and try to accept different ideas, the new travel product will be more special and different from the regular product.” Interviewee C proposed that “the bloggers must comply with travel designers because products have technical procedures. Those are experiences that bloggers do not have. If poor-quality communication interferes with the interaction or the bloggers persist their own opinion when they co-create the travel product with planners, it will affect planners’ willingness to cooperate or could make the price of the new product higher.” This implies that poor communication quality will have negative effects on the relationship between co-creation and NPD performance. In addition, the interviewee proposed that when different opinions arise, the willingness to accept the other party’s opinion would also affect the co-creation process. Therefore, we can see that the quality of communication between the two parties, i.e., product planners and bloggers, can influence the co-creation and performance of a new product. Hence, summarizing the aforementioned, this study infers the following assumption:

**H3:** The quality of communication between planners and bloggers affects the quality of co-creation that ultimately determines the development and performance of a new product.

## 2) Perceived Value

Consumers are value-driven [58]; when they perceive value, their needs are satisfied [59]. A previous study [60] defined perceived value as a consumer's overall assessment of the worthwhile of a product (or service). The most common view of value is as a trade-off between quality and price [61-63], where high value could be ascribed to something with a low price and general quality, or a high price and high quality. A previous study [64] provided other dimensions of perceived value, including product quality, special features, and after-sale service. Hence, for different consumers, the components of perceived value might be different.

Two previous studies found that if consumers viewed a product as having a high value, they would be more willing to buy and recommend the product, expect fewer problems with it, and ultimately increase the product's success on the market by purchasing it.

From the viewpoint of travel agencies, Interviewee B indicated that "The bloggers can communicate with their fans, therefore, they can identify their preferences [and help make tours that satisfy those preferences] and then the fans are more likely to buy the co-creation package tours." Interviewee G indicated that "The bloggers know their fan's preferences, and can design attractive tours, however, the prices of these kinds of tours are higher than regular package tours and some tours fail if customers, especially fans, cannot accept the price." These statements indicate that perceived value is the mediating factor between co-creation and NPD performance. Moreover, Interviewee F said, "The consumers are willing to spend money on these kinds of tours, depending on how customers perceive the quality and price." Interviewee H said, "The itineraries designed by co-creation between bloggers and tour planners attract customers mainly on the basis of price incentives, however, if the price increase is higher than 20%, most of the customers cannot accept it." Interviewee D has the same opinion; he said, "The customers compare the quality and price between the co-creation tour and the regular group tour, and if they perceive the added value, the co-creation product is acceptable." Besides, Interviewee G indicated "The personalities of the bloggers are very specific, and they attract their fans to buy." Most customers that purchase this type of tour do so because they are experienced travelers that cannot be satisfied with regular tours. Therefore, the perceived value of these co-created products will directly enhance the success of those itineraries. Hence, this study infers the following assumption:  
**H4:** A higher perceived value by consumers strengthens the effects of co-creation on the success of a new product.

### C. Research Method

#### 1) Research Design and Sampling

Based on the literature review and case studies, we established the research structure shown in Fig. 1. The more

that bloggers are involved in co-creating new travel products, the better the performance of those products. However, the relationship is influenced by organizational culture and the quality of communication. This study focused on established hypotheses and propositions to determine whether these hypotheses and propositions are valid according to the developed questionnaires. We used hierarchical regression analysis to test our hypotheses.

Before the questionnaire was finalized, we first conducted pretests on tour planners to evaluate its design and appropriateness. The new tourism product development process can be divided into four stages: preliminary design, travel itinerary planning, itinerary sale, and group sales (including tour guide). A five-point Likert scale was used to measure the questions, with measurements ranging from 1 to 5; higher values indicated a higher level of agreement with the evaluation criteria and lower values indicated lower levels of agreement.

## 2) Measurement

This study used the questionnaire as a tool for data collection. Each item was measured on a 5-point Likert scale, ranging from strongly disagree to strongly agree. The measurements were adapted from related papers and the results of interviews. In addition, we developed two new measurements, communication quality and perceived value, based on a literature review and interviews. The questionnaire was then modified after consultations with academics and experts in the field; thus, it has content validity. The validity and reliability of the measurements were then examined by confirmatory factor analysis.

### a) Co-creation

According to [65, 66], during the process of co-creation, partners' willingness to contribute mutually and share professional knowledge helps lead to the success of co-creation. Therefore, four items were used to measure co-creation.

### b) New Product Performance

Based on previous work [67-69], we divided the measurement of new product performance into three categories: quality-oriented, customer-oriented, and market-oriented, each with three items.

### c) Organizational Culture

Based on two previous studies [43, 45], two items focused on the strength of corporate culture were used to measure organizational culture. Also considering that several studies [42, 48, 70] have concluded that performance orientation of organizational culture gives incentive to employees to meet organizational objectives, the following item was used to measure organizational culture: "the incentive system of our company motivates us to meet the company goals."

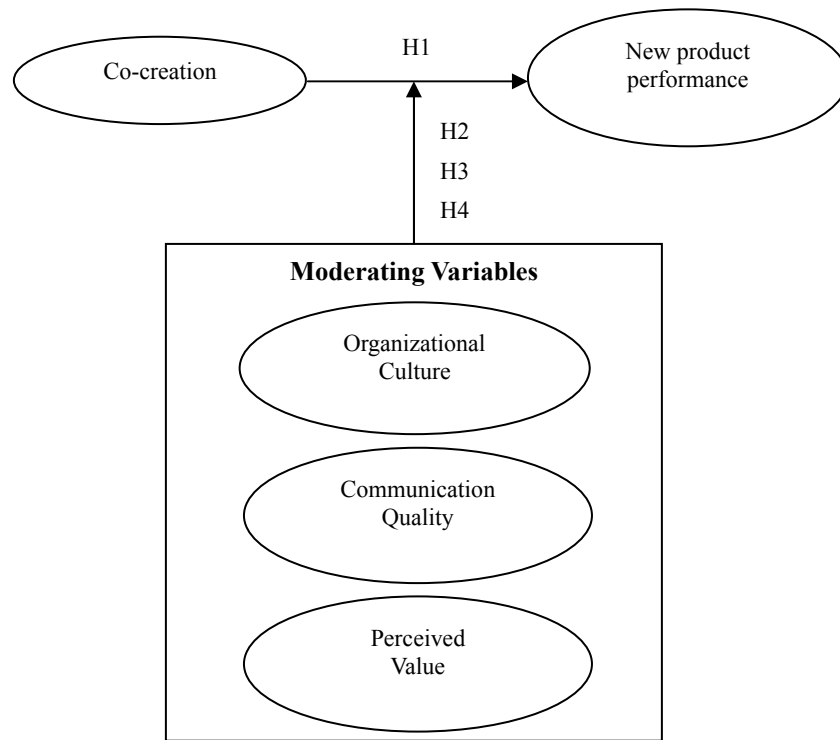


Fig. 1 Research framework

d) *Communication Quality*

Communication is defined as “the exchange of information, transfer of opinions” [50], and knowledge sharing is a form of communication in which two parties exchange information that is useful and usually novel to the receiver [52]. This study adopted the same definitions of two previous studies [55, 66], namely, willingness to engage in knowledge sharing and knowledge learning with others, and four items were used to measure communication quality.

e) *Perceived Value*

The price of a product will lead customers to consider the product’s value [71-73]. Moreover, from the viewpoint of travel agencies, one interviewee noted that “whether the itinerary designed by planners is worth the price depends on the content that attracts the consumers and make[s] them willing to spend money on it.” Therefore, one item, “The price of the itinerary designed by bloggers is attractive,” was developed from interviews.

IV. RESULTS

A. *Demographic statistics*

The questionnaire used for this study included seven

sections that gathered information from bloggers and experts in the travel industry about their demographics, co-creation, new product performance, organizational culture, communication quality, and perceived value. We collected a total of 166 questionnaires; after 5 invalid samples were deleted, the effective sample size was therefore 161. We found that the reliability of all variables reached a high standard (Cronbach’s alpha > 0.7) and the factor analysis was adequate. Thus, the questionnaire items were deemed acceptable and incorporated into the final form.

Descriptions of the survey respondents are presented in Table 2. The percentage of female respondents was 63.4%. Most respondents had more than 5 years’ qualification (40.4%) and tour experience (73.9%) and were responsible for designing domestic (36.0%) and Asian tourist routes (19.9%), as well as specially designed customized tours (48.4%). Moreover, they usually developed new tourism products based on a company’s strategic position (83.9%) and observed market trends (92.5%). The most notable feature was that most of Taiwan’s travel agencies currently do not design itineraries with the help of bloggers or experts. The percentage of itineraries designed with well-known bloggers is only 23.6%, and the percentage co-created with experts is 41.6%.

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TABLE 2 SAMPLING DEMOGRAPHICS (N = 161).

Item	Number	Percentage (%)
<i>Gender</i>		
Male	59	36.6%
Female	102	63.4%
<i>Qualification</i>		
Under 1 year	35	21.7%
1~3 years	44	27.3%
3~5 years	17	10.6%
5 years and above	65	40.4%
<i>Primarily design tourism routes</i>		
Europe and America	16	9.9%
New Zealand and Australia	7	4.3%
Domestic tours	58	36.0%
Mainland China	13	8.1%
Asia area	32	19.9%
Others	35	21.7%
<i>Design patterns</i>		
Standard tours	32	19.9%
Theme tours	23	14.3%
Customized tours	78	48.4%
Others	28	17.4%
<i>Tour experience</i>		
Yes	110	73.9%
No	42	26.1%
<i>Setting up virtual community or website to interact with consumers</i>		
Yes	90	55.9%
No	71	44.1%
<i>Experience of itineraries with bloggers</i>		
Yes	38	23.6%
No	123	76.4%
<i>Experience of itineraries with experts</i>		
Yes	67	41.6%
No	94	58.4%
<i>Type of travel agency for service or collaborate</i>		
Composite travel agency	75	46.6%
A kind of travel agency	83	51.6%
B kind of travel agency	3	1.9%
<i>NPD based on company's strategic position</i>		
Yes	135	83.9%
No	26	16.1%
<i>NPD by observing market trends</i>		
Yes	149	92.5%
No	12	7.5%
Total samples	161	100

*B. Reliability analysis and validity analysis*

To ensure that our measure items were consistent, we first conducted factor analysis with principal axis factoring and oblique rotation. All of the cumulative loadings were more than 0.5, showing that the power of these items to explain the variances was high (see Table 2). During the design of the questionnaire, we created five factors and named them New Product Performance (NPP), Communication Quality (CQ), Organization Culture (OC), Co-Creation (CC), and Perceived Value (PV) individually.

Second, we conducted correlation analysis to examine the correlations between constructs in each model. Co-creation ( $r = 0.449, p < .005$ ), organization culture ( $r = 0.498, p < .005$ ), communication quality ( $r = 0.565, p < .005$ ), and perceived value ( $r = 0.540, p < .005$ ) were significantly and positively related to new product performance. Therefore, the correlation of each construct with new product performance was significant. Hence, this study could proceed to the next step.

Third, Cronbach's alpha was used to assess the reliability of each construct. The scales showed good reliability, with Cronbach's alpha > 0.7 (see Table 4). Convergent validity indicates the extent to which the items of a scale that are theoretically related are in fact correlated. Composite reliability was the common measurement used to evaluate the validity of each construct, and the value was 0.7 or above, indicating that the validity of the research was acceptable. Table 4 summarizes the composite reliability of the research model.

C. Hierarchical regression analysis

Hierarchical regression was used to test the relationships between constructs and the examined hypotheses. According to a previous study [74], we centered (mean = 0) the independent variables and moderator variables when performing our moderated regression analysis to minimize the effects of multicollinearity among the variables comprising our interaction terms. Following another study [75], we examined the variance inflation factors (VIFs) of each predictor in our regression model. All values were

below 10 (between 1.00 and 5.42), indicating that the results had little multicollinearity, but we did not have to delete any variables. Table 5 presents the results of hierarchical regression analysis, with co-creation as a precedent to new product performance, and organizational culture and communication quality as the moderators between co-creation and new product performance.

Model 1 represented the control variable, which was found to have a significant effect on new product performance. More specifically, the design pattern was significantly related to new product performance ( $\beta= 0.188, P < .05$ ). Model 2 included independent variables, and indicated that co-creation was significantly positively related to new product performance ( $\beta= 0.449, P < .05$ ). Hence, Hypothesis 1 was supported. In addition, organizational culture, communication quality, and perceived value as moderators also significantly increased the R<sup>2</sup> of models 3 and 4. Model 5 represented the hierarchical regression model, which had four steps: step 1 included the control variable, step 2 contained independent variables, step 3 added moderator variables, and

TABLE 3 FACTOR ANALYSIS.

Measure items	Factors				
	New product performance	Communication quality	Co-creation	Perceived value	Organization culture
NPP1	.666	.209	.131	.065	.185
NPP2	.762	.196	.174	.195	.135
NPP3	.713	.161	.103	.276	.147
NPP4	.804	.279	.182	.203	.087
NPP5	.812	.148	.018	.153	.155
NPP6	.715	.199	.209	.218	.229
NPP7	.843	.123	.233	.111	.093
NPP8	.799	.162	.221	.153	.142
NPP9	.699	.243	.167	.254	.064
OC1	.237	.341	.063	.000	.760
OC2	.183	.253	.116	.107	.877
OC3	.241	.295	.093	.128	.754
CQ1	.270	.783	.152	.109	.228
CQ2	.231	.837	.109	.083	.261
CQ3	.304	.824	.049	.121	.214
CQ4	.252	.821	.056	.041	.242
CC1	.219	.051	.853	-.001	.020
CC2	.257	.055	.854	.047	-.015
CC3	.068	.071	.735	.218	.090
CC4	.207	.136	.750	.110	.187
PV1	.270	.085	.090	.866	.086
PV2	.307	.221	.120	.788	.018
PV3	.291	-.011	.156	.839	.115
Eigen values	11.071	2.374	1.639	1.392	.797
% of Variance	50.322	10.793	7.449	6.382	3.622
Cumulative % of variance	50.322	61.115	68.564	74.892	78.515

TABLE 4 RESULTS OF INTERNAL RELIABILITY, CONVERGENT VALIDITY AND CORRELATION.

Constructs	Mean	S.D.	Cronbach's alpha (>.7)	Composite reliability (>.7)	NPP	CC	OC	CQ	PV
New Product Performance (NPP)	3.79	0.79	.939	.941	.972				
Co-creation (CC)	3.65	0.79	.847	.848	.449**	.943			
Organizational culture (OC)	3.79	0.80	.863	.865	.498**	.280**	.948		
Communication quality (CQ)	4.12	0.75	.916	.916	.565**	.291**	.630**	.923	
Perceived value (PV)	3.58	0.84	.882	.884	.540**	.317**	.312**	.326**	.954

Notes: Diagonal elements in the "correlation of constructs" matrix are the square root of average variance extracted (AVE).

\* P < .05; \*\* P < .01.

step 4 added interaction terms. The regression analysis of model 5 was significant ( $F = 21.967, p < .05$ ). In model 5, the coefficients of interaction among co-creation and organizational culture were positively and significantly correlated with new product performance ( $\beta = 0.172, P < .05$ ). On the contrary, the interaction between co-creation and communication quality was negatively associated with new product performance ( $\beta = -0.176, P < .05$ ). Moreover, consumers' perceived value did not moderate the relationship between co-creation and new product performance ( $\beta = 0.031, P > .05$ ). Therefore, Hypotheses 1, 2, and 3 were supported, but Hypothesis 4 was not. These results indicate that co-creation is positively associated with new product performance and that organizational culture and communication quality moderate the relationship between co-creation and new product performance.

co-creation and new product performance. A score of more than 2.5 was considered to indicate high performance (and  $\leq 2.5$ , low performance). As shown in Figure 2, new product performance was higher when organizational culture was higher at the same level of co-creation. Furthermore, the relationship between co-creation and new product performance was more sensitive when organizational culture was higher. Therefore, organizational culture positively moderated the relationship between co-creation and new product performance. In contrast, as shown in Figure 3, new product performance was higher when communication quality was higher at the same level of co-creation. However, the relationship between co-creation and new product performance was more sensitive when communication quality was lower. Hence, communication quality negatively moderated the relationship between co-creation and new product performance.

Fig. 2 and Fig. 3 illustrate the relationship between



Fig. 2. Moderating effects of organizational culture on co-creation and new product performance.

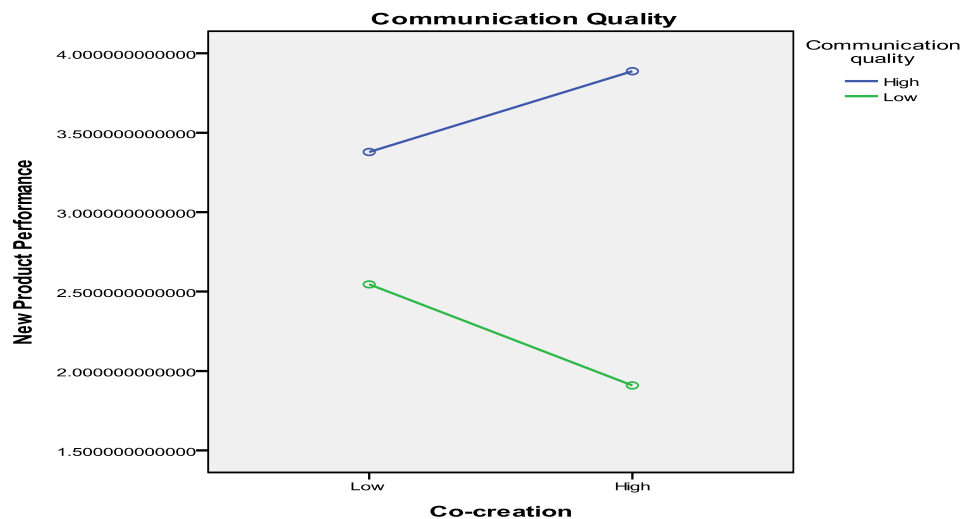


Fig. 3. Moderating effects of organizational culture on co-creation and new product performance.



**TABLE 5 RESULTS OF MODERATED REGRESSION ANALYSIS FOR NEW PRODUCT PERFORMANCE**

DV: New Product Performance	Model 1		Model 2		Model 3		Model 4		Model 5	
	$\beta$ (SE)	<i>t</i>	$\beta$ (SE)	<i>t</i>	$\beta$ (SE)	<i>t</i>	$\beta$ (SE)	<i>t</i>	$\beta$ (SE)	<i>t</i>
Step 1: Control variable										
Constant	-.502(.221)**	-2.272							-.080(.165)	-.483
Design patterns	.188(.079)**	2.395							.028(.059)	.467
Step 2: Independent variables										
Constant			-.007(.071)	-.098	.000(.056)	.002	-.008(.059)	-.130		
H1 Co-creation			.449(.071)***	6.322	.217(.061)***	3.583	.226(.061)***	3.723	.225(.061)***	3.707
Step 3: Moderating variables										
Organization culture					.143(.073)*	1.950	.106(.076)	1.402	.113(.077)	1.465
Communication quality					.306(.073)***	4.161	.312(.073)***	4.252	.303(.076)***	3.972
Perceived value					.328(.062)***	5.315	.351(.062)***	5.678	.346(.063)***	5.484
Step 4: Interaction terms										
H2 CC × OC							.176(.076)**	2.307	.172(.077)**	2.224
H3 CC × CQ							-.178(.069)**	-2.570	-.176(.070)**	-2.517
H4 CC × PV							.033(.064)	.513	.031(.064)	.479
Model R <sup>2</sup>	.035		.202		.514		.537		.538	
Model F	5.734**		39.969***		40.922***		25.203***		21.967***	
ΔR <sup>2</sup>	.035		.202		.312		.024		.022	
ΔF	5.734**		39.969***		33.115***		2.578*		2.426*	

Note: CC: Co-creation; OC: Organization culture; CQ: Communication quality; PV: Perceived value.  
 \* P < .10; \*\* P < .05; \*\*\* P < .01.

V. DISCUSSION AND CONCLUSION

A. Conclusions and managerial implications

At present, travel itineraries are becoming more diverse and creative. Traditionally, tourism followed fixed, standard itineraries, and most consumers made decisions on the basis of price; today, however, travel is different. Not only have itineraries changed, but the consumption patterns have also changed. The appearance of social media and the popularity of the Internet are leading more travel agencies to cooperate with famous bloggers to create a new and distinctive travel product. In this research, we focused on the partnership between travel agencies and bloggers in the product design stage. In addition, consumers have begun to focus on the experience, characteristics, and even the value of a trip, rather than having price serve as the primary consideration.

We first examined the relationship between co-creation with bloggers and new product performance; the results indicated that co-creation is positively related to new product performance. This confirms that an itinerary designed with bloggers could bring distinct benefits to a travel company. Bloggers have more opportunities to interact with consumers than does a travel agency; they can communicate with customers directly, and hence, they can instantly understand and grasp consumers' true needs. Therefore, co-creating the itinerary with bloggers can create more valuable and attractive travel routes, leading to more success selling that itinerary (i.e., high NPD performance). Furthermore, we explored three factors that may moderate the relationship between co-creation and NPD performance: organizational culture, communication quality, and perceived value inferred from a literature review and interviews. We found that organizational culture had a positive moderating effect, communication quality had a negative effect, and perceived value did not show significance in the analysis. Our findings confirm those of several previous studies [43, 44, 47] that found that strong organizational culture strengthens inter-organizational cooperation, synchronizes the goals of organizations, and helps organizations improve performance and motivate employees to work hard.

B. Limitations and future research

Although this study provides interesting insights into the antecedents and moderating variables affecting the relationship between co-creation with well-known bloggers and NPD performance, there are some limitations. First, the nature of the samples and selected sampling frame of this study impose certain limitations. We focused on the travel industry in Taiwan, and it is not clear to what extent the results can be generalized to other countries or industries. Therefore, future studies should test different countries to analyze whether it may generate different outcomes. In addition, this is a new business strategy; few tour designers have experienced co-creation with bloggers. Therefore, future studies should aim to identify and include more tour designers with co-creation experience to confirm our

findings.

Third, the variable of perceived value should represent the customers' point of view, but we did not directly assess this. Rather, we relied on bloggers who made judgments based on their experiences. Hence, the direct opinions of consumers should be surveyed in a future study. Finally, as more and more travel agencies seek to coordinate with travel bloggers to design travel routes, a good blogger will become the soul of itinerary creation and marketing. Due to time limitations, we did not further research the characteristics of bloggers; such information would be greatly useful for travel agencies.

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