



# The Influence of App Users' Perceived Brand Co-Creation Benefits When Conducting Feedback on Its Feedback Intention

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## Abstract

In the seriously competitive market, especially TMT industry, brand co-creation has been a focus of firms. Past studies focus on the economic gains of co-creation, but have little knowledge on the motivation and psychological reasons behind it, which has restricted the development of co-creation research. And they also neglected that the reasons may differ in different circumstances. This paper is going to see it from a particular perspective—the process of user's feedback on App, by adapting the Self-determination Theory and Implicit Self-esteem Theory, and constructing a psychological mechanism that consist of perceived competence and brand co-creation engagement to find the reasons behind. We found that perceived competence can positively influence customer and brand relationship by improving brand co-creation engagement. In reality, this paper can help TMT industry firms to build a better feedback channel so that to improve the brand, and its relationship with customers.

**Key words:** App feedback; Co-creation; Engagement; Perceived competence

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## INTRODUCTION

CO-CREATION is a trend now, especially in this competitive situation. More and more marketers are

integrating the involvement of customers in their competitive edge and use them to improve the products (Füller, 2010). Why is that? Because co-creation has two functions: a) It can help innovation. With the information sharing facility, marketers are realizing that customers can help a lot in their product innovation and develop competitive advantages (Bendapudi & Leone, 2003). Take the example of P&G, 45% product innovation is from customer contribution (Huston, 2006). b) It can improve brand and customer relationship (Füller, 2010). Past study on this aspect has focus on brand attachment (Park & Macinnis, 2006) and brand love (Nbsp et al., 2005), and to better explain this relationship, the motion “ brand engagement ” is proposed to describe the psychological mechanism of the process (Brodie et al., 2013).

There are many forms of CO-CREATION, such as users of Wikipedia helping to construct each item consciously (Boyd & Ellison, 2007). Social media generates a lot of users' contents (Seraj, 2012). Open sources like linux (Pitt et al., 2006). There is one more form that is ignored, but is very important in the wed 2.0 age. That is the tremendous feedback each App receives every day. Nearly 80% of App improvements are suggested by these feedbacks and it is impossible for any App developer to neglect the power of users' feedback. However, the feedback process lacks of innovation and there is potential for the improvement of the process.

So is it possible that brand engagement can be used to explain the process of App users' feedback process, and provides some insights on both the academy and practice? Because not all the co-creation processes can be explained by brand engagement (Vargo et al., 2010)

If it is possible, we should make clear how this process comes and goes. On the general study on co-creation. The starts are the co-creation motivations: Such as asking for return, fulfillment of curiosity and to purely improving the product (Nambisan & Baron, 2007). The results are the increase of intention of purchase (Fuchs et al., 2010;

Fang et al., 2008), economic gain of the company (Füller, 2010), etc.

So what are the starts and results of the process of user's App feedback process? So we try to use the basic model of (Hsieh & Chang, 2016) to explain the psychological process of this. And the self-determine theory (Deci & Ryan, 1987) can be the theory foundation of it. SDT answers that is the essence of the start of the process.

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## 1. LITERATURE REVIEW

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### 1.1 Co-Creation

With the spread of knowledge and tools, customers are actually owning more power, and are asking for the involvement of co-creation for a product (Prahalad et al., 2000). In the process of value delivery, the traditional relationship of produce and buy is changed. Customers are playing an important role in the design, distribution and production process of a product. Customers' value is being enlarged and it is so powerful that companies have to find a way to cooperate with them (Vargo & Lusch, 2004). So it is in internet companies, and they require more in this aspect.

Previous study on co-creation focus on the motivation of customers, motivation of companies and the result of co-creation (Hoyer et al., 2010). On motivation of customers: for improvement of states and self-esteem (Nambisan & Baron, 2009), recognition (Hennig-Thurau et al., 2004), helping others (Füller et al., 2012), work opportunities (Lerner & Tirole, 2002). However, despite of all the specific motivations, we do not know what the motivation is for App users. And it is more than those reasons. And some can be concluded.

On motivation of companies: for patents (Hatch & Schultz, 2010), for ideas (Poetz & Schreier, 2012; Magnusson et al., 2003). And it is common in situation of App feedback. So this aspect is fine.

On the results of co-creation: commercial gains (Fang et al., 2008), customer behaviors such as buying intention (Fuchs et al., 2010; Bendapudi & Leone, 2003). But the App feedback process may be different from other forms. There may be more results, such as recommendation.

So speaking of this special form of co-creation: App feedback. We try to focus on what starts it and what it can result on customers, also we try to explain the process of engagement.

### 1.2 Brand Co-Creation Engagement

The motion "Engagement" is from psychology and organizational behavior. It means an individual is completely involved in work (Kahn, 1990). And it is being used in the study of marketing. In marketing, co-creation engagement is: "persistent, positive affective-motivational state of fulfillment that is characterized by vigor, dedication, and absorption toward brand co-creation."

Vigor is characterized by high levels of energy to invest strength and persistency in one's work. Dedication indicates feeling a sense of meaning and enthusiasm. Absorption is described as being fully concentrated and happily captivated in one's work (Schaufeli et al., 2006). We have to distinguish engagement from flow (Csikszentmihalyi, 1990). Flow is "the state in which people are so involved in an activity that nothing else seems to matter". It is a deeper state of mind with a sense of control, time flies and peak experience. In engagement, there is no sense of control (Webster & Ho, 1997). And engagement has a unique dedication element. It has more interaction and involvement (Mollen & Wilson, 2010). Previous study noted that engagement can improve loyalty (Brodie et al., 2013).

### 1.3 Consequences of Consumer Brand Co-Creation Engagement

The feedback process will bring new relationship between App users and the App. And if we take the app as a brand. The relationship is always measured by repurchase intention (Park et al., 2013; Laroche et al., 1996; Thomson et al., 2005), feedback intention (Thorbjørnsen, 2005; Lane & Jacobson, 1997; Milberg et al., 1997) and helping others intention (Muniz & O Guinn, 2001; Burmann & Zeplin, 2005). Engagement is to do something consistently and intensively (Wellins & Concelman, 2005).

### 1.4 Perceived Competence

Perceived Competence (White, 1959) is a natural character of human when he feels self-esteem and confident. Perceived Competence is the subjective evaluation of the real competence. It is an important psychological reward that helps consistent hard work. According to SDT, the enhancement of competence experience such as acquiring new skills, positive feedback when meeting challenge, can help improve perceived competence, so that to improve inner motivation (Deci & Ryan, 1980; Deci & Ryan, 2000).

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## 2. THEORETICAL MODEL AND HYPOTHESES

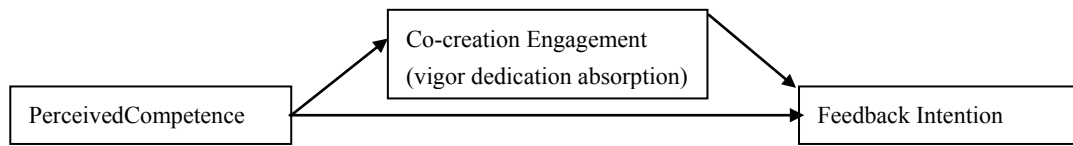
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### 2.1 Theoretical Model

Self-determination Theory (Deci & Ryan, 1980) is from organizational behavior. It postulates that the satisfaction of three innate psychological needs—autonomy, competence, and relatedness—determines a person's engagement in various activities (Deci & Ryan, 2000). It implies that engagement should be determined by inner motivation rather than outer motivation like reward (Deci & Ryan, 2000). And study also finds out that the satisfaction of these three needs can enhance inner and outer motivations as well as job satisfaction and performance (Meyer & Marylène, 2008).

In summary, this paper constructs a conceptual model with attributes of perceived competence, brand co-creation engagement and feedback intention, as shown in Figure 1. Specifically, perceived competence

is independent variable, three dimensions of brand co-creation engagement (vigor, dedication, and absorption) are mediating variable, and feedback intention is dependent variable.



**Figure 1**  
**Theoretical Model of This Study**

## 2.2 Hypotheses

### 2.2.1 Relationship Between Co-Creation Engagement and Feedback Intention

In the context of App feedback, the valuable results of engagement is Feedback intention, because App needs a daily improvement on bugs and functions (Kumar et al., 2010). Like iPhone, users are highly involved in the co-creation to improve the use experience, functions and attract more users (Arruda-Filho et al., 2010)

H1: The co-creation engagement in the process of user App feedback positively affects feedback intention.

H1a: Vigor in the co-creation engagement in the process of user App feedback positively affects feedback intention.

H1b: Dedication in the co-creation engagement in the process of user App feedback positively affects feedback intention.

H1c: Absorption in the co-creation engagement in the process of user App feedback positively affects feedback intention.

### 2.2.2 Relationship Between Perceived Competence and Brand Trust

The competence comes from the interaction with the environment (Fisher, 1978). When situation changes, the degree of competence will change accordingly. So to set an environment that can encourage people to produce confidence will help improve the perceived competence. It is possible that customers have some part of unfilled need of competence in co-creation tasks (Bendapudi & Leone, 2003). So if customers have competence when customer are co-creating, like App feedback, according to SDT, the unfilled need of competence being filled can help promote engagement (Deci & Ryan, 2000; Deci & Ryan, 1980). But we can not know whether a user with or without perceived competence will or will not try to conduct a feedback. So even though perceived competence has the tendency to influence feedback intention, the reality is unknown. Therefore it raises the following assumptions:

H2: The perceived competence in the process of user App feedback positively affects co-creation engagement.

H2a: The perceived competence in the process of user App feedback positively affects Vigor in co-creation engagement.

H2b: The perceived competence in the process of user App feedback positively affects Dedication in co-creation engagement.

H2c: The perceived competence in the process of user App feedback positively affects Absorption in co-creation engagement.

### 2.2.3 Relationship Between Perceived Competence and Feedback Intention

It is likely that engagement will help produce brand commitment (Myer et al., 2004). And commitment will likely produce positive purchase intention, recommendation and WOM (Yen et al., 2011). Therefore, this paper thinks that perceived competence in the process of user App feedback positively affects feedback intention, and raises the following assumptions:

H3: The perceived competence in the process of user App feedback positively affects feedback intention.

### 2.2.4 Mediate Effect of Co-Creation Engagement

But we still do not know whether perceived competence can directly influence feedback intention or by co-creation engagement, therefore:

H4: Co-creation engagement have mediate impact on the relationship between perceived competence and feedback intention

H4a: Vigor in the co-creation engagement have mediate impact on the relationship between perceived competence and feedback intention.

H4b: Dedication in the co-creation engagement have mediate impact on the relationship between perceived competence and feedback intention.

H4c: Absorption in the co-creation engagement have mediate impact on the relationship between perceived competence and feedback intention.

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## 3. METHOD

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### 3.1 Samples and Measures

This study takes the consumers as the respondents. To ensure the representativeness of the subjects, this study selected China's largest online questionnaire survey platform "Wen Juan Xin" (Website: <https://www.sojump.com/>) to conduct a questionnaire survey. "Wen Juan Xin" has a sample library with 6.8 million members,

related to all age groups, industry, having a high representativeness.

A total of 400 questionnaires were collected from the survey. Then some invalid questionnaires were

removed for the purification after the code. Finally, 368 valid questionnaires were selected. The demographic information of the sample is shown in Table 1.

**Table 1**  
**Demographic Information**

|           | Item                            | Frequency | Percentage |
|-----------|---------------------------------|-----------|------------|
| Gender    | Male                            | 221       | 60.1%      |
|           | Female                          | 147       | 39.9%      |
| Age       | <=20                            | 96        | 26.1%      |
|           | 21-30                           | 226       | 61.4%      |
|           | 31-40                           | 29        | 7.9%       |
|           | >40                             | 17        | 4.6%       |
| Education | Middle school                   | 48        | 13.0%      |
|           | High school or secondary school | 103       | 28.0%      |
|           | Undergraduate                   | 114       | 30.9%      |
|           | Graduate                        | 103       | 27.9%      |

The operational definition and scale of variables have a decisive effect on the results of the study. Therefore, the measurement of the variables in this study is all authority scales, to meet the requirements of content validity. In addition, scales were used Likert5-points measure. The interviewees express their consent to the question by checking the number 1-5.

The scale of attributes of perceived competence refers to the research of Van den Broeck et al. (2010), including 3 items. A sample item is: "I really master my tasks in the brand contest"; the scale of feedback intention refers to the research of Grewal et al. (1998), including two items. A sample item is: "I fill out customer satisfaction surveys to Brand X's company"; the scale of brand co-

creation engagement refers to the research of Schaufeli et al. (2002), including twelve items. A sample item is: "At my work I always persevere, even when things do not go well".

### 3.2 Preliminary Research

This study did a pre-research within a small scope, to ensure effectiveness of the various questions by doing EFA test with the data. The EFA test result is shown in Table 2. As we can see, the variable of perceived competence has rotated three factors, brand co-creation engagement has rotated one factor, and feedback intention has rotated two, which indicates the scales have good validity.

**Table 2**  
**EFA Test Result of Preliminary Research**

| Variable                     |            | Item | 1     | 2     | 3     | Variable             | Item  | 1     | 2     |
|------------------------------|------------|------|-------|-------|-------|----------------------|-------|-------|-------|
| Brand co-creation engagement | Vigor      | V1   | 0.222 | 0.092 | 0.813 | Perceived competence | PC1   | 0.831 |       |
|                              |            | V2   | 0.224 | 0.176 | 0.790 |                      | PC2   | 0.833 |       |
|                              |            | V3   | 0.044 | 0.349 | 0.673 |                      | PC3   | 0.812 |       |
|                              |            | V4   | 0.044 | 0.349 | 0.673 | KMO                  | 0.696 |       |       |
|                              | Dedication | D1   | 0.776 | 0.131 | 0.253 | Feedback intention   | FI1   | 0.789 | 0.228 |
|                              |            | D2   | 0.714 | 0.321 | 0.130 |                      | FI2   | 0.851 | 0.127 |
|                              |            | D3   | 0.537 | 0.190 | 0.268 |                      |       |       |       |
|                              |            | D4   | 0.858 | 0.110 | 0.019 |                      |       |       |       |
|                              | Absorption | A1   | 0.180 | 0.850 | 0.188 |                      |       |       |       |
|                              |            | A2   | 0.303 | 0.708 | 0.163 |                      |       |       |       |
|                              |            | A3   | 0.154 | 0.806 | 0.219 |                      |       |       |       |
|                              | KMO        |      | 0.841 |       |       | KMO                  | 0.788 |       |       |

## 4. DATA ANALYSIS

### 4.1 Reliability, Validity and Correlation

Reliability analysis refers to the possibility of using the same observation method to obtain similar observations (results) for the same subject. In this study, Cronbach's  $\alpha$

was used to measure the internal reliability of the scale. It is generally acknowledged, the greater Cronbach's  $\alpha$ , the better the internal reliability. The result of reliability of this study is shown in Table 3. Cronbach's  $\alpha$  of all the variables are greater than 0.6, indicating that the collected data has good internal reliability.

**Table 3**  
**EFA Test Result of Preliminary Research**

| Variable and dimensions      | Item                 | CITC  | Corrected item-total correlation | Cronbach's $\alpha$ |              |
|------------------------------|----------------------|-------|----------------------------------|---------------------|--------------|
| Brand co-creation engagement | Vigor                | V1    | 0.589                            | 0.593               | <b>0.728</b> |
|                              |                      | V2    | 0.591                            | 0.588               |              |
|                              |                      | V3    | 0.473                            | 0.728               |              |
|                              | Dedication           | V4    | 0.600                            | 0.691               | 0.766        |
|                              |                      | D1    | 0.585                            | 0.693               |              |
|                              |                      | D2    | 0.600                            | 0.691               |              |
|                              |                      | D3    | 0.478                            | 0.753               |              |
|                              | Absorption           | D4    | 0.592                            | 0.698               | <b>0.784</b> |
|                              |                      | A1    | 0.683                            | 0.643               |              |
|                              |                      | A2    | 0.570                            | 0.767               |              |
|                              |                      | A3    | 0.620                            | 0.712               |              |
|                              | Perceived competence | A4    | 0.600                            | 0.691               | <b>0.762</b> |
| PC1                          |                      | 0.590 | 0.686                            |                     |              |
| PC2                          |                      | 0.510 | 0.752                            |                     |              |
| Feedback intention           | PC3                  | 0.585 | 0.693                            | <b>0.776</b>        |              |
|                              | F11                  | 0.662 | 0.641                            |                     |              |
|                              | F12                  | 0.549 | 0.765                            |                     |              |
|                              | F13                  | 0.477 | 0.610                            |                     |              |

Validity is the degree that the measurement tool can accurately measure what is required, including content validity, convergent validity and discriminant validity.

On content validity. Since the measuring items used in this study are from the mature scale developed and verified by predecessors, content validity is good.

On convergent validity. This study measures

convergent validity by the value of CR and AVE (also called CFA test). Generally, if CR is greater than 0.6, and AVE is greater than 0.5, the convergent validity is regarded as good. The result of CFA is shown in Table 4, we can learn from the result that CR and AVE of all variables are up to standard. Therefore, convergent validity is good.

**Table 4**  
**Result of CFA Model**

| Variable             | Item                             | Factor loading | 1-SMC      | CR           | AVE          |
|----------------------|----------------------------------|----------------|------------|--------------|--------------|
| Vigor                | V1                               | 0.752          | 0.434      | <b>0.749</b> | <b>0.501</b> |
|                      | V2                               | 0.762          | 0.419      |              |              |
|                      | V3                               | 0.597          | 0.644      |              |              |
|                      | V4                               | 0.730          | 0.467      |              |              |
| Dedication           | D1                               | 0.733          | 0.463      | <b>0.803</b> | <b>0.505</b> |
|                      | D2                               | 0.730          | 0.467      |              |              |
|                      | D3                               | 0.685          | 0.531      |              |              |
|                      | D4                               | 0.692          | 0.521      |              |              |
| Absorption           | A1                               | 0.851          | 0.276      | <b>0.790</b> | <b>0.559</b> |
|                      | A2                               | 0.649          | 0.579      |              |              |
|                      | A3                               | 0.627          | 0.607      |              |              |
|                      | A4                               | 0.758          | 0.425      |              |              |
| Perceived competence | CL1                              | 0.709          | 0.497      | <b>0.763</b> | <b>0.519</b> |
|                      | CL2                              | 0.748          | 0.440      |              |              |
|                      | CL3                              | 0.702          | 0.507      |              |              |
|                      | CL1                              | 0.709          | 0.497      |              |              |
| Feedback intention   | BF1                              | 0.816          | 0.334      | <b>0.780</b> | <b>0.545</b> |
|                      | BF2                              | 0.627          | 0.607      |              |              |
|                      | BF3                              | 0.758          | 0.425      |              |              |
|                      | BI2                              | 0.787          | 0.381      |              |              |
|                      | BI3                              | 0.598          | 0.642      |              |              |
| Fit index            | $\chi^2/df=1.416$ ;<br>NFI=0.920 | RMSEA=0.035;   | GFI=0.943; | AGFI=0.921.; | CFI=0.975;   |

On discriminant validity. This study measures discriminant validity by comparing value of AVE with standardized coefficient (observed variable and other variables). Generally, if AVE is greater than standardized coefficient,

the convergent validity is regarded as good. The result of discriminant validity is shown in Table 5; we can learn from the result that all the AVE are greater than standardized coefficient. Therefore, discriminant validity is good.

**Table 5**  
**Result of Discriminant Validity**

| Variable                | 1     | 2     | 3            | 4            | 5            |
|-------------------------|-------|-------|--------------|--------------|--------------|
| 1. Vigor                | 0.501 |       |              |              |              |
| 2. Dedication           | 0.191 | 0.505 |              |              |              |
| 3. Absorption           | 0.218 | 0.197 | <b>0.559</b> |              |              |
| 4. Perceived competence | 0.276 | 0.255 | 0.321        | <b>0.519</b> |              |
| 5. Feedback intention   | 0.222 | 0.226 | 0.243        | 0.310        | <b>0.545</b> |

Before regression analysis, this paper first did a correlation analysis. The result is shown in Table 6. We can see that there is a significant correlation between

six variables, which provides a basis for subsequent regression analysis.

**Table 6**  
**Correlations of Variables**

| Variable                | 1       | 2       | 3       | 4       | 5 |
|-------------------------|---------|---------|---------|---------|---|
| 1. Vigor                | 1       |         |         |         |   |
| 2. Dedication           | 0.437** | 1       |         |         |   |
| 3. Absorption           | 0.467** | 0.444** | 1       |         |   |
| 4. Perceived competence | 0.525** | 0.505** | 0.567** | 1       |   |
| 5. Feedback intention   | 0.471** | 0.475** | 0.493** | 0.557** | 1 |

## 4.2 Result of Regression Analysis

This study tests the hypothesis by regression analysis with SPSS software, to find out the relationship between attributes of Brand Co-creation Engagement, Perceived Competence and Feedback Intention, and verify the mediating effect of Brand Co-creation Engagement.

### 4.2.1 Linear-Regression Analysis

(a) Hypothesis testing of attributes of Brand Co-creation Engagement and Feedback Intention

The multiple regression results of the attributes of Brand Co-creation Engagement (Vigor, Dedication and Absorption), as independent variables, and Feedback Intention as dependent variable, are as Table 7. We can see that the coefficient of three independent variables are significant, which proves that Vigor, Dedication and Absorption have significant and positive effect on Feedback Intention. Therefore, hypothesis H1a, H1b, H1c are all passed.

**Table 7**  
**Hypothesis Result Between Perceived Competence and Feedback Intention**

| Variable   | Standardized coefficient Beta | T     | $\Delta F$ | df1 | df2 |
|------------|-------------------------------|-------|------------|-----|-----|
| Constant   | 0.917***                      | 4.277 |            |     |     |
| Vigor      | 0.261***                      | 5.418 | 89.653***  | 3   | 327 |
| Dedication | 0.241***                      | 5.042 |            |     |     |
| Absorption | 0.338***                      | 6.951 |            |     |     |

(b) Hypothesis testing of Perceived Competence and attributes of Brand Co-creation Engagement

Similarly, the multiple regression results of the attributes of Perceived Competence, as independent variables, and attributes of Brand Co-creation Engagement (Vigor, Dedication and Absorption) as

dependent variable, are as Tables 8-10. We can see that the coefficient of all independent variables are significant, which proves that Perceived Competence have significant and positive effect to Vigor, Dedication and Absorption. Therefore, hypothesis H2a, H2b, H2c are all passed.

**Table 8**  
**Hypothesis Result Between Perceived Competence and Vigor**

| Variable             | Standardized coefficient Beta | T     | ΔF        | df1 | df2 |
|----------------------|-------------------------------|-------|-----------|-----|-----|
| Constant             | 1.215***                      | 5.222 | 62.835*** | 3   | 327 |
| Perceived competence | 0.271***                      | 5.198 |           |     |     |

**Table 9**  
**Hypothesis Result Between Perceived Competence and Dedication**

| Variable             | Standardized coefficient Beta | T     | ΔF        | df1 | df2 |
|----------------------|-------------------------------|-------|-----------|-----|-----|
| Constant             | 1.164***                      | 5.610 | 73.160*** | 3   | 327 |
| Perceived competence | 0.213***                      | 4.208 |           |     |     |

**Table 10**  
**Hypothesis Result Between Perceived Competence and Absorption**

| Variable             | Standardized coefficient Beta | T     | ΔF        | df1 | df2 |
|----------------------|-------------------------------|-------|-----------|-----|-----|
| Constant             | 1.164***                      | 5.610 | 73.160*** | 3   | 327 |
| Perceived competence | 0.256***                      | 5.069 |           |     |     |

(c) Hypothesis testing of Perceived Competence and Feedback Intention

The multiple regression results of the Perceived Competence, as independent variables, and Feedback Intention as dependent variable, are as table 11. We can

see that the coefficient of two independent variables are significant, which proves that Perceived Competence has significant and positive effect on Feedback Intention. Therefore, hypothesis H3a passed.

**Table 11**  
**Hypothesis Result Between Perceived Competence and Feedback Intention**

| Variable             | Standardized coefficient Beta | T     | ΔF         | df1 | df2 |
|----------------------|-------------------------------|-------|------------|-----|-----|
| Constant             | 0.916***                      | 3.864 | 103.354*** | 2   | 328 |
| Perceived competence | 0.304***                      | 6.365 |            |     |     |

**4.2.2 Mediating Effect Analysis**

Mediating effect, that is, the independent variable affects the dependent variable through the mediating variable. The testing steps are following: a) test if the independent variable affects the dependent variable significantly; b) test if the independent variable affects the mediating variable significantly; c) test if the independent variable and mediating variable affect the dependent variable significantly; d) if step1 and step 2 are significant, then see the result of step 3. In step 3, if the coefficient of independent variable is insignificant, full mediating effect exists; if the coefficient of independent variable is significant and the value is lower, partial mediating effect

exists. In this way, this study tests the mediating effect of brand trust.

(a) Mediating Effect of Vigor

This study first tests the regression coefficients of Perceived Competence and Feedback Intention, and then tests the regression coefficients of the Perceived Competence and Vigor. Finally, we test the regression coefficients of the Perceived Competence + Vigor to Feedback Intention. The result can be seen in table 12. After adding Vigor into the multiple regression model, the regression coefficients of three dimension of Perceived Competence are all-significant, and lower, as well. Partial mediating effect exist. Therefore, hypothesis H4a passed.

**Table 12**  
**Result of Mediating Effect of Vigor**

| Relationship among variables             | Standardized coefficient | Test results             |
|--|--------------------------|--------------------------|
| Perceived competence →Feedback intention | 0.567***                 | Partial mediating effect |
| Perceived competence →Vigor              | 0.493***                 |                          |
| Perceived competence →Feedback intention | 0.386***                 |                          |
| Vigor →Feedback intention                | 0.367***                 |                          |

(b) Mediating Effect of Dedication

This study first tests the regression coefficients of the three dimensions of Perceived Competence and Feedback Intention, and then tests the regression coefficients of Perceived Competence and Dedication. Finally, we tests the regression coefficients of the three dimensions

of Perceived Competence + Dedication to Feedback Intention. The result can be seen in Table 13. After adding Dedication into the multiple regression model, the regression coefficients of three dimension of Perceived Competence are all-significant, and lower, as well. Partial mediating effect exist. Therefore, hypothesis H4b passed.

**Table 13**  
**Result of Mediating Effect of Dedication**

| Relationship among variables |                     | Standardized coefficient | Test results             |
|------------------------------|---------------------|--------------------------|--------------------------|
| Perceived competence         | →Feedback intention | 0.567***                 | Partial mediating effect |
| Perceived competence         | →Dedication         | 0.477***                 |                          |
| Perceived competence         | →Feedback intention | 0.434***                 |                          |
| Dedication                   |                     | 0.280***                 |                          |

(c) Mediating Effect of Absorption

This study first tests the regression coefficients of the three dimensions of Perceived Competence and Feedback Intention, and then tests the regression coefficients of Perceived Competence and Absorption. Finally, we tests the regression coefficients of the three dimensions

of Perceived Competence + Absorption to Feedback Intention. The result can be seen in Table 14. After adding Absorption into the multiple regression model, the regression coefficients of three dimension of Perceived Competence are all-significant, and lower, as well. Partial mediating effect exist. Therefore, hypothesis H4c passed.

**Table 14**  
**Result of Mediating Effect of Absorption**

| Relationship among variables |                     | Standardized coefficient | Test results             |
|------------------------------|---------------------|--------------------------|--------------------------|
| Perceived competence         | →Feedback intention | 0.525**                  | Partial mediating effect |
| Perceived competence         | →Absorption         | 0.498***                 |                          |
| Perceived competence         | →Feedback intention | 0.376***                 |                          |
| Absorption                   |                     | 0.299***                 |                          |

**5. DISCUSSION**

**5.1 Theoretical Implications**

H1 predicted that the Perceived Competence has significant effect on Brand Co-creation Engagement, and corresponding hypothesis was supported. That is, the higher Perceived Competence, the higher Vigor/ Dedication/ Absorption, which is consistent with the current researches (Robertson & Robertson, 2010).

H2 predicted that Brand Co-creation Engagement have significant effect on Feedback Intention and corresponding hypothesis was supported. That is, the higher Vigor/ Dedication/ Absorption, the higher Feedback Intention, which is consistent with the current researches (Bendapudi & Leone, 2003).

H3 predicted that the Perceived Competence has significant effect on Feedback Intention and corresponding hypothesis was supported. That is, the higher Perceived Competence, the higher Feedback Intention, which is consistent with the current researches (Deci & Ryan, 2000; Deci & Ryan, 1980).

H4 predicted that Brand Co-creation Engagement plays the mediating role in the relationship between Perceived Competence and Feedback Intention and corresponding hypothesis was supported. In other words, attributes of

Perceived Competence affects Feedback Intention through Brand Co-creation Engagement, which is consistent with the current researches (Schaufeli et al., 2006).

It is worth mentioning that there is no empirical study about the relationship between Perceived Competence, Brand Co-creation Engagement and Feedback Intention, so this study can be regarded as a fill to in this theoretical gap.

**5.2 Practical Implications**

This study brings about several practical suggestion in marketing management as follows:

- (a) Internet enterprises should pay attention to the importance of the role of perceived competence, because it strongly influences how much a user of an App will devote energy to the process of feedback.
- (b) Internet enterprises should set more interesting and easy functions for users when they are conducting feedback, so that it can bring more and more perceived competence from them.
- (c) Internet enterprises should try to engage users to the process of feedback, by improving their vigor, dedication and absorption, so as to improve its co-creation engagement, and give more useful suggestions to App.



### 5.3 Limitation and Further Study

Due to limit of time and effort, the study has some limitations. Firstly, the questionnaire is forwarded by friends around, so the scope may not be wide enough. In the future, we should expand the scope of interviewees, like increasing the number of interviewees in more other channels. Besides, the model seems a little simple due to the lack of moderating variable. In the future, some appropriate moderating variables will be considered to be adding into the model, such as other characteristics of consumer, customer involvement and so on.

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