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# EFFECTS OF VIRTUAL COMMUNITIES ON PURCHASING DECISION-MAKING: THE MODERATING ROLE OF INFORMATION ACTIVITIES

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# EFFECTS OF VIRTUAL COMMUNITIES ON PURCHASING DECISION-MAKING: THE MODERATING ROLE OF INFORMATION ACTIVITIES

## Abstract

*Marketing professionals gradually utilize virtual communities as a new media for affecting sales by spreading information about brand, quality, price, experience, effectiveness, etc. Studies related to this subject usually focus on influence of electronic word of mouth and posters' opinions on product choice. Lack of considering passive participants and natures of virtual community induces our interest. For comprehensively understanding every participant's attitude toward information in virtual communities, we classified members based on their activities of posting, viewing and accepting information. According to the classification, we further explore comparative importance of antecedents regarding to members' intention to adopt information for purchasing decision-making in variant groups. Data was collected by questionnaires and actual number of posting behaviors. Results show that the importance of economic, relational and social factors varies from different groups. Information shoppers, who browse most information and rarely post messages, view relational and social factors as main contributors toward intention to adopting information as a decision aid. Advice seekers, who expect to get effective recommendations and rarely post messages, think relational factors is a major determinant. Advice providers, who are primary posters and seldom accepting others' opinions, think economic and social factors are important to intention of adopting information.*

Keywords: purchasing decision-making, types of information activities, emotional trust, a sense of belonging, virtual communities.

# 1 INTRODUCTION

Virtual communities collect individuals to come together for making relationships, sharing common goals and interests, as well as getting social supports. Researchers point out that an additional function of virtual communities is economic exchange, e.g., Hagel and Armstrong (1997), Pentina et al. (2008), and Zhou et al. (2007). Ridings et al. (2006) stated that individuals in virtual communities are motivated to conduct online shopping activities and it is true especially when individuals form strong social connections and trust within members. Members in virtual communities mutually discuss products or brands from multiple dimensions, such as prices, effectiveness, reputation, usage experiences, or potential problems (Hung and Li, 2007). Smith et al. (2005) indicated that online members' recommendations facilitate consumers' purchasing decision-making. Participating in virtual communities is expected to have a social network, a long-term relationship, and a shared-value, so virtual communities can shape a subject norm to influence members' preference (Pentina et al., 2008).

"Herd behavior" proposed by Banerjee (1992) describes a phenomenon in which individuals perform uniform behavior in social and economic situation, such as decision making. Information cascade, positive network effects, word-of-mouth effects, and conformity preference are major mechanisms of herding behavior (Bikhchandani et al., 1992). Individuals in virtual communities are immersed in various discussions and then easily influenced to do what others are doing. Marketing professionals find some ways to promote online shopping activities by virtual communities according to the herding phenomenon, such as electronic word of mouth, interactivity electronic storefronts, and shopping reference groups (Pentina et al., 2008). Many researches focus on the influence of electronic word of mouth in virtual communities on product choices. Yet, research on shopping reference groups in virtual communities is practically little. The manner of shopping reference groups considers not only the propagation of positive usage experiences, but also the influence of social networks. One of prominent features of virtual communities is being one member of a family-like group. Hence, we propose that influences of electronic word of mouth and reference groups on shopping preferences simultaneously exist in virtual communities and are effective only when others believe information and deeply involve in virtual communities. Pentina et al. (2008) also emphasized the importance of how members value and utilize other members' opinions to perform purchasing decision-making. Most researches related to marketing issues in virtual communities start from observation of posting messages and behaviors. This trend ignores the opinions of silence members, i.e. "lurker," who seldom posts message and always views messages in virtual communities. Preece et al. (2004) pointed out that posters and lurkers have different attitudes toward virtual communities. Yet, it may be inappropriate to classify members into posters and lurkers. Little research reveals how many types of behaviors are there in virtual communities.

Accordingly, the purpose of this study with exploratory nature is to figure out two questions. The first is what types of members' manifest behaviors are there in virtual community considering activities of posting, viewing, and using information. The second is what distinct factors influences members in different types of behaviors to use others' opinions, so as to assist in purchasing decision making. We expect that this exploratory study could explore members' behavior, perception and intention in purchasing decision-making from multiple perspectives and then have a further understanding about marketing issues in virtual community.

## 2 CONCEPTUAL BACKGROUND AND HYPOTHESES

### 2.1 Virtual communities as exchange of shopping information

Virtual communities are getting an important medium for conducting online shopping activities (Hagel and Armstrong, 1997). Online shopping activities include buying in community and searching for shopping information, such as product quality, price, brand, etc. Pentina et al. (2008) stated that the concept of virtual communities is broader than electronic word of mouth. Beside of electronic word of mouth, individuals participating virtual communities also presupposes formation of

relationships, long-term social interactions, and shared values and norms (Pentina, 2008). Because of the social interaction, shopping reference groups are developed in virtual communities and then influence individuals' evaluations, aspirations, or behavior (Pentina, 2008). Prior studies from the perspective of social psychology propose that individuals' motivations to join virtual communities includes needs for social integration (a sense of belonging), for help in achieving goals by obtaining information, for realizing economic exchanges, for status enhancement (by impressing others), and for entertainment, e.g., Ridings and Gefen (2004) and Thibaut and Kelley (1959). Ridings et al. (2006) indicated that exchange of shopping information among reference group members related to product evaluations, preferences, or opinions is especially true when virtual communities have strong social connections and trust with members. Moreover, Lessig and Park (1975) proposed that informational influence occurs when individuals perceives enhancement of knowledge and are capable of using information for dealing with environment. Whether shopping information is really used by members for purchasing decision-making is further addressed. When customers intend to use shopping information as a decision aid, they will carefully examine members' recommendations and explanations before they make the final decision (Komiak and Benbasat, 2006). Accordingly, we will draw the research model from the perspectives of motivations of individuals' participations and the central role of information in virtual communities.

## **2.2 Motivation of adopting information for purchasing decision making**

Following the perspective of social psychology and relationship management, as well as information adoption model proposed by Sussman and Siegal (2003), this study explores individuals' motivations to participate in virtual communities and make purchasing decision by considering economic exchange, social integration and trust.

Information adoption model describes that argument quality and source credibility are major antecedents of information usefulness, in turn influence on information adoption (Sussman and Siegal, 2003). Information quality refers to the persuasive strength embedded in a message (Battacherjee and Sanford, 2006). The persuasive strength is the value of a message perceived by the users (Cheung et al., 2008). The more value and usefulness of messages perceived by users, the more willingness to adopt information. Source credibility is related to the users' trust on the source of messages, i.e. a virtual community. Moreover, the central role of trust in relationship management is also considered since Ridings et al. (2006) emphasized trust is important to exchange information in virtual communities.

### **2.2.1 Economic consideration**

Social exchange theory indicates that individuals are willing to maintain relationships because of the expectation that to do so will be rewarding (Blau, 1968). Individuals voluntarily sacrifice their self benefits and contribute these benefits to another individual with the expectation for more future retains and gains. Information value and usefulness are predictors of information adoption according to information adoption model (Cheung et al., 2008). "Expected benefits" have been considered the main determinants for information value in a variety of disciplines (Lope and Galletta, 2006). Individuals are willing to continuously be involved in virtual communities because they expect to get more benefits from sacrifice their time for posting and viewing messages. Perceived benefit is also from the evaluation of usefulness of information in improving users' decision-making (Yovits and Foulk, 1985). Once individuals think they gain great benefit from participating virtual communities, they will be more likely to adopt shopping information in virtual communities for making purchasing decision. Hence, we propose:

*H1: Perceived benefit from a virtual community is positively associated with intention to adopt information in the virtual communities as a decision aid.*

### **2.2.2 Social consideration**

From the perspective of social psychology, virtual communities provide individuals with social support which shape a feeling of a sense of belonging, rather than a group of people living close to

each other (Hampton and Wellman, 2001). Prior studies indicate that a sense of belonging is a primary success factor for sustaining virtual communities, e.g., Hagerty et al. (1996) and Kim et al. (2004). A sense of belonging is defined as “the experience of personal involvement in a system or environment so that persons feel themselves to be an integral part of the system or environment” (Hagerty et al., 1992). Moreover, individuals with a higher sense of belonging are willing to spend more time and effort to participate in and use virtual communities (Lin, 2007; Roberts, 1998). When individuals are highly involved in virtual communities, they will be more likely to believe that information is worthiness and helpful for them, in turn increase the intention to adopt information. Besides, because of deeply involvement, individuals are willing to rely on virtual community psychologically, as well as feel comfortable and easy when surfing in virtual communities. Hence, we propose:

*H2: A sense of belonging to a virtual community is positively associated with intention to adopt information in the virtual communities as a decision aid.*

*H3: A sense of belonging to the virtual communities is positively associated with emotional trust in the virtual communities.*

### **2.2.3 Relational consideration**

The definition of “virtual communities” in most researches is based on concepts of communication and relationship building (Lee et al., 2003). Trust is one of core concepts in relationship management, which increase the relationship strength (Morgan and Hunt, 1994). McKnight et al. (2002) categorize three types of trust based on theory of reasoned action, including disposition to trust, trusting belief, and trusting intention. The concept of trusting belief is consistent with of cognitive trust which focuses on trustors’ rational expectation of relying on trustees (Komiak and Benbasat, 2004; McKnight et al., 2002). However, Kramer (1999) proposed that rational choice perspective affords too small a role to emotional and social influences on trust decisions. Relational, emotional and social influences are essential to sustain virtual communities. Emotional trust is referred to that one feels secure and comfortable about relying on the trustee (Komiak and Benbasat, 2004). So, emotional trust must be taken into account for explaining how people actually make decisions about whether to trust or not. According to theory reasoned action, the attitude is a major determinant of the person’s intention to perform a given behavior (Fishbein and Ajzen, 1975). Individuals are more likely to get deeply involved in virtual communities and to intend to adopt information as a decision aid when they have high level of a positive attitude, i.e. emotional trust, toward virtual communities. Hence, we propose:

*H4: Emotional trust in a virtual community is positively associated with intention to adopt information in the virtual communities as a decision aid.*

## **2.3 Moderating effect of different types of information activities**

Informational influence proposed by Lessig and Park (1975) occurs in virtual communities. Ridings and Gefen (2004) indicated that one of motivations to join virtual communities is the need for help in achieving goals by obtaining information. Individuals post, view, accept, and use shopping information in virtual communities. Prior studies usually focus on posters’ behaviors, yet the influence of lurkers on virtual communities could not be disregarded. Lurkers are generally defined as visiting a community, but not posting or posting very infrequently (Ridings et al., 2006). Preece et al. (2004) proposed that lurkers and posters have different attitudes toward the community. Although both of lurkers and posters want more information about the community topic and social supports, but posters think that they receive more benefit from the community and their needs are better met than lurkers (Preece et al., 2004). The result of Ridings et al.’s (2006) research shows that lurkers differed significantly from posters, especially in their willingness to give information and exchanging social support. Therefore, the dimension of using information has to be paid attention. One of main objectives in virtual communities is exchange information. Yet, researches usually overlook the value and worthiness of information in virtual communities. We propose “information activities,” which considers members’ general feelings related to value and worthiness of information simultaneously as

a representative of members who have different attitudes and behaviors. Users' motivations of intention of adopting information in virtual communities vary from members' information activities. The factors inducing users who perform aggressive behavior to adopt information in virtual communities will be different from those who perform passive behavior. For example, posters who think they receive more benefits from communities (Preece et al., 2004) will pay more attention on economic factors because they may be more self-centric and have self position on discussions. However, users who have limited own information and little self position on discussions will tend to put more weight on the information derived from others' information and behaviors according to information cascade theory (Duan et al., 2009). So, these users may pay more attention on a sense of belonging and trust because they have to select credible sources to follow. Hence, we propose:

*H5: The influence of determinants on intention to adopt information as a decision aid is moderated by the types of members' information activities in a virtual community.*

*H5a: The association of perceived benefit and intention to adopt information as a decision varies from different types of members' information activities in a virtual community.*

*H5b: The association of a sense of belonging and intention to adopt information as a decision varies from different types of members' information activities in a virtual community.*

*H5c: The association of emotional trust and intention to adopt information as a decision varies from different types of members' information activities in a virtual community.*

The proposed research model is shown in Figure 1.

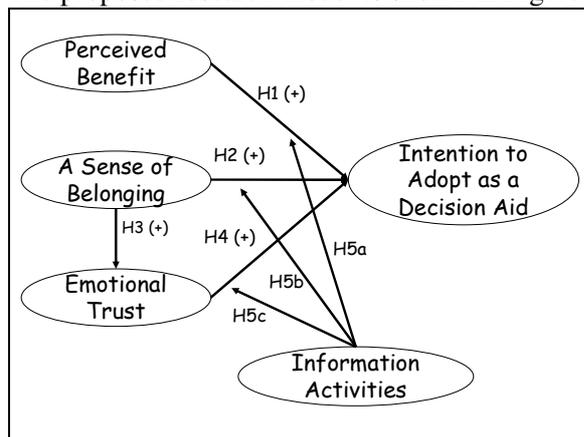


Figure 1: Research Model

### 3 RESEARCH METHOD

#### 3.1 Operationalization and Instrument Design

The instruments for constructs are adapted from literature and revised to fit our research context, as shown in Table 1, including constructs of “intention to adopt as a decision,” “perceived benefit,” “a sense of belonging,” and “emotional trust.” All items were anchored on seven-point Likert scales, from strong disagreement to strong agreement. A short interview with several colleagues and experts and a pre-test were carried out to ensure face validity and content validity for the compliant questionnaires. Information activities indicated members' activities of posting, viewing and valuating information in virtual communities. It is measured by member's posts and scopes of accepting information. Activities of posting and viewing information are presented by numbers of members' posts collected from historic records of the target virtual community. The activity of valuating information is presented by scopes of accepting information, which includes “all information in virtual communities is only as reference,” “information proposed by a specific someone is accepted,” “information proposed by a specific group is accepted,” and “all information in virtual communities is

accepted.” If information is valuable to members, members will think opinions in this information is worth being accepted.

Construct	Definition	Measurement Items
Intention to adopt as a decision aid	The extent to which a member is willing to dependent on other members’ suggestions for decision making (Komiak and Benbasat, 2006).	<ol style="list-style-type: none"> <li>1. I am willing to use the suggestions in the virtual community as an aid to help me my decision about which product to buy.</li> <li>2. I am willing to use the suggestions in the virtual community as a tool that suggests to me a number of products from which I can choose.</li> <li>3. I am willing to let the suggestions in the virtual community assist me in deciding which product to buy.</li> </ol>
Perceived benefit	The extent to which participations perceive the content to be associated with intrinsic motivation (Lopes and Galletta, 2006).	<ol style="list-style-type: none"> <li>1. I can see several positive outcome coming from the use of this web site, such as money, time saved, enhanced decision making, completion of tasks, learning or entertainment.</li> <li>2. The use of this web site would bring me a lot of rewards.</li> <li>3. Overall, the expected benefits in using this web site are high.</li> </ol>
A sense of belonging	The degree of the expectation of personal involvement in a system or environment, which persons feel themselves to be an integral part of the system or environment (Hagerty et al., 1992; Lin, 2007).	<ol style="list-style-type: none"> <li>1. I feel a strong sense of belonging to the virtual community.</li> <li>2. I enjoy being a member of the virtual community.</li> <li>3. I am very committed to the virtual community.</li> <li>4. Overall, the virtual community has a high level of morale</li> </ol>
Emotional Trust	The extent to which a member’s feelings of security and comfort about relying on this community (Komiak and Benbasat, 2006).	<ol style="list-style-type: none"> <li>1. I feel secure about relying on the virtual community for my decision.</li> <li>2. I feel comfortable about relying on the virtual community for my decision.</li> <li>3. I feel content about relying on the virtual community for my decision.</li> </ol>

Table 1: Operationalization for Constructs

### 3.2 Data Collection

A web-based questionnaire comprised of objectives of this study and a compliant questionnaire was administered collecting data from members of a target virtual community. This target virtual community is chosen because it is the most popular beauty virtual communities in Taiwan. This virtual community form several groups for discussing and introducing many kinds of products related to beauty and fashion. The posted message was put on this virtual community for two weeks. Moreover, the manager of this virtual community provided the demographics and numbers of posting of participants to us. In order to attract more members to attend this survey, the virtual community provided trial samples of cosmetics as incentives. Respondents were self-selected for this study via the posted messages. During this period, out of 355 questionnaires were filled in. After filtering unusable returns, 309 completed questionnaires are usable for data analysis.

Among these respondents, up to 90% of respondents are female because this virtual community focuses on cosmetics discussion. The number of respondents joining this virtual community for 1~4 years is around 67%. Only 11% respondents join this virtual community within one year. Most respondent are with Internet and discussion groups experiences, so these respondents are suitable to answer our questionnaires.

## 4 DATA ANALYSIS AND RESULTS

### 4.1 Measurement Model

The measurement model is assessed by confirmatory factor analysis using LISREL 8.50. Loading factors of indicators are all above the acceptable level of 0.5 and significant ( $p \leq 0.01$ ). The statistics of fit indices are acceptable compared to the desired level suggested by Bentler (1980), as presented in Table 4. It reveals the acceptance of construct validity. The reliability and convergent validity are acceptable as compared the threshold suggested by Bagozzi (1980): 0.7 and 0.5 respectively, as shown in Table 2. The discriminant validity is acceptable based on the rule that the correlations between any two distinct construct are lower than the square root of the average variance extracted of these constructs (Fornell and Larcker, 1981), as shown in Table 3.

Construct	Mean	S.D	Composite Reliability	Average Variance Extracted
Perceived benefit	5.80	1.02	0.95	0.86
A sense of belonging	5.85	0.84	0.92	0.75
Emotional trust	5.95	0.80	0.99	0.97
Intention to adopt as a decision aid	5.33	1.10	0.97	0.92

Table 2: Reliability and Convergent Validity

	Per_Ben	Belonging	Em_Trust	Intention
Perceived benefit	<b>0.93</b>	—	—	—
A sense of belonging	0.69	<b>0.87</b>	—	—
Emotional trust	0.45	0.65	<b>0.99</b>	—
Intention to adopt as a decision aid	0.57	0.74	0.60	<b>0.96</b>

Table 3: Discriminant Validity (Diagonal represents square root of AVE of each construct)

	$\chi^2$	d.f.	$\chi^2 / d.f.$	Standardized RMR	RMSEA	NFI	CFI	GFI
Model	165.80	59	2.81	0.051	0.077	0.97	0.98	0.92
Desired levels	Not significant	--	< 5.0	.05 ~ .08	.05 ~ .08	> .90	> .90	> .80

Table 4. Model Fit Indices for Measurement Model

### 4.2 Hypotheses Testing

The structure model was analysed using LISREL 8.50. Two steps were performed for testing hypotheses. First, the main effect was examined (H1~H4). Second, the moderating effect (H5) was examined by the multi-group structural equation modelling analysis. Samples were classified by the cluster analysis.

The result of main effect is presented in Figure 2. The statistics of fit indices are acceptable compared to the desired level suggested by Bentler (1980), as presented in Table 5. It reveals that this model fit well with the observed data. Only the association of perceived benefit and intention to adopt as a decision aid is insignificant (H1) whose t-value is 1.75. Others associations are all significant (H2~H4) and the directions are consistent with our predictions. The explained variance of intention to adopt as a decision aid and emotional trust are 58% and 43%, respectively. The results reveal that a sense of belongings and emotional trust are important antecedents of intention to adopt information as a decision aid. Moreover, a sense of belonging also indirectly influences intention to adopt information as a decision aid mediated by emotional trust. When members emotionally rely on the virtual community and feel themselves to be an integral part of the virtual community, they will be more willing to treat information as important reference for shopping choice.

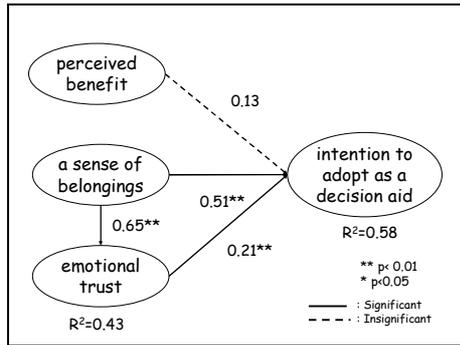


Figure 2: Structural Model – Main Effect

	$\chi^2$	d.f.	$\chi^2 / \text{d.f.}$	Standardized RMR	RMSEA	NFI	CFI	GFI
Model	143.81	58	2.48	0.049	0.069	0.98	0.99	0.93
Desired levels	Not significant	--	< 5.0	.05 ~ .08	.05 ~ .08	> .90	> .90	> .80

Table 5. Model Fit Indices for Structural Model – Main Effect

Regarding the moderating effect of types of information activities (H5), two steps were carried out. First, two-stage cluster analysis was performed based on log of numbers of posts and scopes of accepting information, so as to identify possible groups. In a two-stage cluster analysis, hierarchy cluster with Ward’s Method and measurement of Squared Euclidean Distance was first performed and then K-Mean cluster analysis was used. The profile of final clusters is shown in Table 6. There are 135 members who in the first cluster. Members in the first group are seldom post information and view others’ opinions only as information resource, rather than believing in others’ opinions. We named this cluster as “information shopper.” The second cluster consists of 81 members. These members also seldom post information, but they believe in the greater part of others’ opinions. We named this cluster as “advice seeker.” The third cluster is comprises 93 members. These members always post information up the virtual community, but they refer to others’ opinion only as one of information source instead of believing in them. We named this cluster as “advice provider.” According to the results, members who seldom post information up virtual communities have two position related to worthiness of information. One is almost totally believe others’ opinion and the other is treating the information as just a reference. It reveals that simultaneously considering behaviors of posting and using information is appropriate to classified members.

	Cluster 1 (n=135) (Information Shopper)		Cluster 2 (n=81) (Advice Seeker)		Cluster 3 (n=93) (Advice Provider)	
Posts of numbers	=0	25.2%	=0	30.9%	>=50	0%
	1~5	34.8%	1~10	30.9%	51~100	9.6%
	6~10	17.8%	11~20	11.1%	101~200	19.3%
	11~38	22.2%	21~100	18.5%	201~400	19.3%
	>=39	0%	101~1000	6.2%	401~600	11.9%
			1001~3421	2.4%	601~1000	11.9%
		>=3422	0%	1000~18030	28.0%	

Scopes of accepting information	● all information in virtual communities is only as reference	87.4%	● all information in virtual communities is only as reference	0%	● all information in virtual communities is only as reference	82.8%
	● information proposed by a specific someone is accepted	12.6%	● information proposed by a specific someone is accepted	0%	● information proposed by a specific someone is accepted	8.6%
	● information proposed by a specific group is accepted	0%	● information proposed by a specific group is accepted	55.6%	● information proposed by a specific group is accepted	7.5%
	● all information in virtual communities is accepted	0%	● all information in virtual communities is accepted	44.4%	● all information in virtual communities is accepted	1.1%

Table 6. Profiles of Final Clusters

LISREL 8.50 is performed to examine the moderating effect of types of information activities by comparing the differences of path coefficients among three clusters. The fit indices of three model estimations are acceptable and reveal that these models fit well with the observed data, as shown in Table 7. Figure 3 shows the result of structural model estimation of the “information shopper” group. The association of perceived benefit and intention to adopt as a decision aid is insignificant. Members in this group usually browse information and have little confidence on information in a virtual community. Members in this group pay little attention on economic factors. When members in this group feel themselves as an integral part of a community and have strong emotional trust in the virtual community, they are willing to adopt others’ posts as a decision aid. Moreover, a sense of belonging increases the level of emotional trust, in turn, enhance intention of adoption. Members in “information shopper” group pay little attention on economic factors. Members of the “information shopper” group have no enough knowledge about cosmetic products to making decision independently and have weak linkage with a virtual community. So, the way to assist these members in making decision is to let them follow others’ actions by enhancing their intimacy with and reliance on a community.

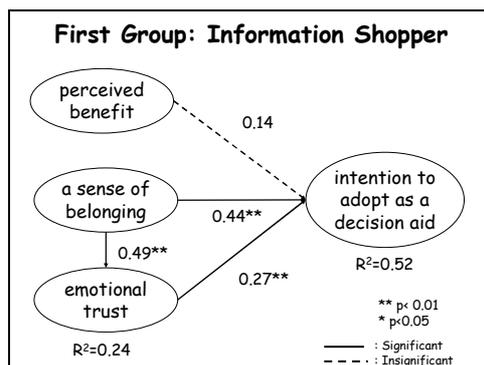


Figure 3. Moderating Effect – The Group of Information Shopper

Figure 4 shows the result of structural model estimation of the “advice seeker” group. It reveals that only emotional trust directly increases members’ intention to adopt as a decision. A sense of belonging indirectly enhances members’ intention mediated by emotional trust. A sense of belonging is an important determinant of emotional trust based on the path coefficient and explained variance, in comparison with the result of information shopper group. Accordingly, members, who expect to have guidance from a virtual community for shopping choice, think that the feeling of being an integral part of the virtual community is the critical factor to make them more like to adopt this information for making purchasing decision. The reason may comes from that members of the “advice seeker” group

have little knowledge about cosmetic products and then tend to observe and follow actions of other people those members trust in.

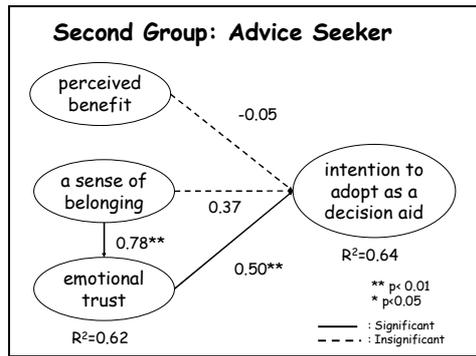


Figure 4. Moderating Effect – The Group of Advice Seeker

Figure 5 shows the result of structural model estimation of the “advice provider” group. The association of emotional trust and intention is insignificant. Perceived benefit and a sense of belonging are main antecedents of intention to adoption. A sense of belonging highly influences emotional trust and explains the variance of emotional trust over 50%. Members who are primary contributors to the virtual community think that perceived benefit and a sense of belonging are their major considerations to adopt information for purchasing decision-making. Emotional trust in virtual communities is irrelative to purchasing decision making. Members in the advice provider group seemingly take economic factors (perceived benefit) into account, rather than relational factors (emotional trust). However, social factors (a sense of belonging) are still important in all groups. This finding is accordance with Preece et al.’s (2004) research, which indicates posters think they receive more benefits from virtual communities. Following the information cascade theory, users who are very knowledgeable about the product, others’ influences are shrunk (Duan, 2009). They will not simply follow others’ action unless they think others’ information is valuable by carefully evaluating information quality and usefulness. However, the intimate connection of a specific community is so close that they are willing to follow individuals’ action of this specific community. Moreover, the target virtual community provides cosmetics trial samples for qualified members and expect these members to provide their experience detailed and accurately. The rewards of real world may induce member to perform different behaviors. As a result, H5 is supported.

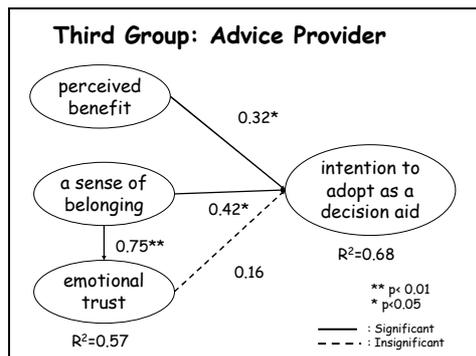


Figure 5. Moderating Effect – The Group of Advice Provider

	$\chi^2$	d.f.	$\chi^2 / d.f.$	Standardized RMR	RMSEA	NFI	CFI	GFI
Model_1 <sup>st</sup> Grp	116.43	58	2.00	0.077	0.087	0.95	0.97	0.88
Model_2 <sup>nd</sup> Grp	113.42	58	1.96	0.092	0.110	0.91	0.95	0.82
Model_3 <sup>rd</sup> Grp	62.56	58	1.10	0.040	0.029	0.97	1.00	1.00

Table 7. Model Fit Indices for Three Groups

## 5 DISCUSSION AND IMPLICATION

### 5.1 Academic Implications

This study tries to figure out the influence of a virtual community on members' intention to adopt information as a decision aid by considering effects of individual's information activity thoroughly. All hypotheses are statistically supported except for hypothesis 1 which indicates the relationship of perceived benefit and intention to adoption. The results of main effects shows that a sense of belonging and emotional trust are significant antecedents of intention to adoption, which are in accordance with literature, such as Komiak and Benbasat (2004) and Lin (2007). However, the insignificant effect of perceived benefit on intention to adoption is different from prior study, e.g., Lope and Galletta (2006).

We further find evidence that there are more than two types of members' information activities and the major contributors of intentions to use information for purchasing decision-making are distinct in each type of members. Prior studies classified users in virtual communities into posters and lurkers based on users' posting behaviors, e.g., Preece et al. (2004) and Ridings et al. (2006). But, results of this study reveal that lurkers can be divided into two groups based on how they value information in a virtual community. Besides, this study also shows that posters are major contributors to a virtual community, yet they don't appreciate others' posting information. Three groups are categorized from the result, including information shoppers, advice seekers, and advice providers. The group of "information shoppers," who is like onlookers, seldom posts messages and has little confidence in information of a virtual community. The group of "advice seekers" seldom posts messages up a virtual community, yet they believe in most information posted in a virtual community. The group of "advice providers" loves to share their experiences and knowledge with other members, but they seldom refer to others' opinions. A sense of belonging is always critical to intention to adopt information as decision aids among these groups. The influences of perceived benefit and emotional trust on intention to adoption vary from members' behaviors. Preece et al. (2004) indicated the attitude of posters toward a virtual community is different from of lurkers. Ridings et al. (2006) also proposed that the willingness of information exchange and social support between posters and lurkers is distinct.

Regarding to comparison of three groups, this study presents three interesting findings. Firstly, perceived benefit from a virtual community is the main incentive to induce advice providers. This finding is contrast to literature in which indicated that deeply involved members do not concern benefits from virtual communities, but it is in accordance with Preece et al.'s (2004) study, which indicate that posters think that they receive more benefit from the community than lurkers. The reason may come from the rewards of a real world. The target virtual community provides opportunities for qualified members chosen based on degrees of involvement and posting histories to try out free cosmetics samples. The responsibility of these members is to post messages related to experiences of trials, such as effectiveness, quality, sensation, and so on. The more accuracy messages of members' post, the more opportunities of trying out samples they have in the future. Secondly, lurkers are split into "advice seekers" and "information shoppers." The main different between them is the role of a sense of belonging in formation of intention. Although advice seekers expect to have recommendation from a virtual community for purchasing decision-making, they adopt information only when they deeply rely on the community. The determinant of reliance comes from the feeling of being an integral part of the community. On the contrary, information shoppers think both a sense of belonging and emotional trusts are directly affect formation of intention to adopt information as a decision aid. Thirdly, the relative importance of perceived benefit and emotional trust depends on posting behaviors. Beside of social factors, information shoppers pay more attention on trust, whereas advice providers emphasize the role of perceived benefit.

## 5.2 Managerial Implication

Our findings lead to three suggestions for managers of virtual communities. Firstly, the linkage of posting behavior and external rewards of the real world may be an effective way to induce members to pleasurablely share their professional information in virtual communities. Findings reveal that “advice providers” are good at posting messages in the virtual community, yet they seldom refer to others’ opinions as decision aids. The reason may come from the virtual community provides real rewards to some specific posters. The rewards have to be related to the business of virtual communities. For example, the target virtual community whose core business is related to beauty provides chosen members trial samples of cosmetics. Therefore, these chosen members are willing to recommend products that they really like and appreciate. Once the information in the virtual community is rich, accuracy and valuable, lots of individuals will be attracted to join virtual communities and are willing to follow the recommendations to buy cosmetics products. Vendors whose products are recommended will receive increasing orders and then would like to continuously support this virtual community. This virtual community can raise their professional image, reputation and profits. All of vendors, advice providers, other members and virtual communities benefit from this strategy. Accordingly, managers of the virtual community could foster a group of members whose primary duties are posting helpful messages, so as to enrich the quantity and quality contents in the virtual community, in turn attract more people to participate in the virtual community.

Secondly, lurkers are be classified into two groups. One group usually views information just as reference, that is, “information shoppers.” The other group usually accepts most information in the virtual community, that is, “advice seekers.” The factors which enhance members’ intention to adopt information as a decision aid are different between two groups. Information shoppers think both of “a sense of belonging” and “emotional trust” are important. The way to improve advice seekers’ intention for adoption is to increase their emotional trust on virtual communities. Accordingly, manager of the virtual community could figure out their silent members’ features, so as to increase the effectiveness of posted message on purchasing decision-making.

Thirdly, findings indicate that advice providers as the major posters in the virtual community are willing to adopt information as a decision aid only when they perceives benefits from the virtual community. It is better for manager of the virtual community to assure the information quality posted by members who have chance to try free cosmetic samples, so as to induce advice providers’ confidence in other members’ messages, in turn consider information as decision aids.

## 5.3 Limitations

Due to limitations of this study, results should be treated with caution. First, data was collected from only one virtual community, so the generalizability of findings may be limited. However, the target is the most popular beauty virtual community in Taiwan, this limitation could be diminished. Second, data was collected through a self-administered web questionnaire, so the doubts of self-selection maybe lead to a bias. But, our research design tried to eliminate duplicate response through controlling member accounts. Third, this study is with exploratory nature, the findings have to be well explained based on solid theory in the future.

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