

# Understanding the Moderating Effects of Gender on Personality Traits and Customer Knowledge Preferences

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## Abstract

Empirical evidence suggests that an enterprise can obtain knowledge related to new demands about products or services through interactions with customers, which can be helpful references leading to the enhancement of customer satisfaction and loyalty. However, little is known about the antecedents of customer knowledge preferences. Therefore, this study begins with a literature review followed by the use of a questionnaire method to investigate the relationships among personality traits, gender and customer knowledge preferences. Results indicate that three of the five personality traits, as measured by the Big-5 factors of personality, contribute to explain customer knowledge preferences. Gender has a moderating effect on the traits of emotional stability and customer knowledge preferences.

**Keywords:** *Personality traits, Gender, Customer knowledge preference*

## 1. Introduction

Due to the fact that the standard of living has been improving, customer demands related to products and services have increased as well. Moreover, consumers have stronger opinions about the kind of products and services they want; thus, conventional management styles and treatment of customers are no longer able to satisfy current customer needs. When customers are faced with large arrays of goods, enterprises should have deep know-how about how to influence the psychological processes related to customer choices of products or services in order to control and change their purchase decisions (Gregan-Paxton, 2001; Yoon et al., 2009). In the current market environment, if an enterprise can only provide products and services with limited options, then it is not possible to satisfy customer needs. Even though mass production can help reduce cost and meet consumers' demand for low-price products, consumers who focus more on quality and customization will require enterprises to understand the behavior or methods related to how they perceive and strategically decide the products they choose. Therefore, enterprises not only must focus on customers, but they also need to actively be engaged in dialogues and interactions with customers in order to collect customer knowledge that will lead to an understanding of the reasons why they buy specific products (Garcia-Murillo and Annabi 2002; Wayland and Cole 1997). In other words, if an enterprise

can manage and utilize different kinds of customer knowledge, then it is possible to enhance corporate competitiveness and to achieve sustainability. Hence, it is imperative for enterprises to understand the trends of customer preferences and how their personality traits and gender influence their decisions so that they can focus on designing marketing strategies that will influence purchase decisions. However, it is not easy for an enterprise to acquire knowledge from customers and effectively utilize this knowledge to enhance customer satisfaction.

Based on the abovementioned explanation, if an enterprise does not understand its customer knowledge preferences and emphasizes customer needs, it will be difficult for it to survive in the market. Prior studies have mainly examined how enterprises acquire, select, generate, and apply customer knowledge to enhance competitiveness (Tseng 2009; Yeung et al. 2008), and few studies have deeply investigated customer knowledge preferences based on personality traits and gender. Therefore, this research is based on gender as a moderating variable by which to investigate the differences in customer knowledge preferences according to different personality traits and to propose specific suggestions for enterprises to enhance customer satisfaction.

## 2. Theoretical Background

### 2.1 Customer knowledge

Garcia-Murillo and Annabi (2002) defined customer knowledge as the knowledge that customers possess regarding various issues concerning the products and services they are interested in and the information that the enterprise should possess in order to provide assistance to customers when they are deciding on a purchase. Rowley (2002) classified customer knowledge into knowledge about customers, including knowledge regarding potential customers and customer segments as well as knowledge about individual customers; and customer knowledge about product ranges, including such things as how computer components are compatible with each other, how particular drugs effectively treat ailments, and the suitable contexts and marketplaces for certain products and

services. Yeung et al. (2008) mentioned that the application of knowledge about customers is not the same as marketing-oriented applications. Marketing-oriented applications are responsive behavior towards marketing information designed to create the highest customer value. Furthermore, customer knowledge applications are devoted to creating an extremely crucial intangible asset to yield competitive advantage. Hence, if an enterprise can integrate marketing orientation and customer knowledge, then it can provide operational flexibility by which to increase corporate agility and create higher levels of customer value (Jayachandran et al. 2004; Tuominen et al. 2004). They further proposed a conceptual framework based on product quality, customer service, effective sales personnel, effective communication, and social compliance as the main attributes of customer knowledge in order to explore how such knowledge improves firm operational performance. In addition, they suggested that firms should allocate resources to these significant attributes while organizing their improvement activities.

Day et al. (1979) posited that customer knowledge has been considered to be a strategic resource that helps enhance corporate competitive advantage. Li and Calantone (1998) pointed out that enterprises should utilize existing or potential customer information to extract customer knowledge that is useful to enhance competitive advantage in the market. Furthermore, sharing and distributing customer knowledge can help enhance corporate values. The ability to retrieve customer knowledge occurs mainly through generating, structuring and organizing customer information. Conant and White (1999) suggested that customer knowledge can enhance corporate ability to segment the market in order to come up with coping strategies. In other words, if an enterprise can determine how customers perceive and use products, then it is possible to develop effective customized sales strategies. While Gibbert et al. (2002) recognized that customers should be willing to share information and that enterprises should observe the interactions and dialogues with their customers so that they can acquire customer knowledge in order to provide customized products and services that will help maintain customer relationships. While Liao et al. (2010) found that enterprises can integrate product and sales knowledge through database and mining techniques to extract and collect valuable customer information and can in turn provide this knowledge to suppliers and retailers as references by which they can develop and promote new products and manage customer relationships.

Dhar (1999) perceived preferences as a kind of attitude and this kind of attitude will lead the purchase flow and behavior that will make customers buy certain products and not buy other products. Customer preference is a kind

of perspective and an attitude of the customer towards a product that can be affected by product characteristics that will also affect product acceptance and purchase decisions. Hence, enterprises should customize products based on customer preferences and conduct one-on-one marketing. If an enterprise is able to understand the potential preferences of customers, then it is possible to provide a service that the customers really need even before knowing what they want beforehand. This will increase the switching costs for customers that eventually will enhance customer loyalty (Kotler 2000). If an enterprise can provide products that meet customer preferences, then it is possible to create outstanding value.

Based on the abovementioned literature review, customer knowledge is an important tacit asset for a company, and it is generated through certain products and scenarios. Moreover, different products will have different customer preferences, and the factors determining customer knowledge preferences are very complex. This makes it imperative for enterprises to put more effort into investigating the real meaning behind customer behavior. If an enterprise can understand customer knowledge preferences and implement customer knowledge management, it not only can immediately respond to customer needs but also can enhance the ability of an enterprise to develop new products (Broniarczyk and Griffin, 2014).

## 2.2 Personality Traits

In general, personality includes abstract traits that are difficult to observe. It is long-term, stable and unchanging. The personality of an individual is unique, and even in a specific environment, each person's behavior may vary (Allport 1961). As of now, personality theories include psychoanalytic theory, phenomenon theory, cognitive theory, trait theory, behavioral theory and social cognitive theory. Each theory has its own characteristics and supporters. The trait theory mainly investigates individuals with different attributes and characteristics that helps lead to an understanding of differences in individuals and what factors influence personality development; hence, trait theory holds a significant position in personality theories. Trait theorists also suggest that traits are the building blocks of personalities that influence and affect extrinsic behavior (Pervin 1993).

Cattell (1943) classified 16 types of personality traits to predict the behavior of individuals in certain scenarios. These 16 types of personality traits include warmth, reasoning, emotional stability, dominance, liveliness, rule-consciousness, social boldness, sensitivity, vigilance, abstractedness, privateness, apprehension, openness to change, self-reliance, perfectionism, and tension. Based on beliefs about whether internal or outside forces have

control over people's success, Rotter (1966) classified personality traits into internal and external locus of control. The internal locus of control is about how people are responsible for their own lives, while the external locus of control is about outside events that affect customers' lives. Based on Norman's research methods and results, Goldberg (1981) proposed the Five-Factor Model (FFM), which is called the Big-5. Costa and McCrae (1986) proposed a measurement indexes for these five factors that has become the most widely accepted personality traits theory, described as follows:

1. Neuroticism is characterized by anxiety, moodiness, worry, envy, and jealousy.
2. Extraversion tends to be manifested in outgoing, talkative, and energetic behavior, whereas introversion is manifested in more reserved and solitary behavior.
3. Openness involves six dimensions, including active imagination, aesthetic sensitivity, attentiveness to inner feelings, preference for variety, and intellectual curiosity.
4. Agreeableness is perceived as being kind, sympathetic, cooperative, warm and considerate.
5. Conscientiousness is defined as being thorough, careful, or vigilant.

John (1990) collectively abbreviated these five personality traits into "OCEAN" to make it memorable, which has become the most widely used name for the Five Factor Model (FFM).

Aside from those mentioned above, there are several other fields bringing up dimensions or variables that can be considered as personality traits, which should be further investigated. For example, self-efficacy, one of the most common personality traits in organizational behavior studies, refers to individual beliefs about executing certain tasks (Bandura 1997). Self-monitoring refers to an individual's ability to adjust to external factors. People with high levels of self-monitoring are more sensitive towards different situations and will show different traits and attitudes. While people with low levels of self-monitoring always show their actual personal traits and attitude towards different situations; hence they have uniform behavior (Snyder 1987). O'Reilly et al. (1991) proposed the dimensions of organizational culture. For example, creativity and risk exposure can also be seen as personality traits, because organizations are comprised of people, and each individual has unique personality traits. If most employees have similar personality traits, these might become or influence organizational culture because organizational culture is a system of shared meaning. When this system is tested further, then it means that this is a set of traits that the organization is putting an emphasis on (Robbins 2001).

## 2.3 Gender

In 1968, a psychologist called Robert J. Stoller, in his book entitled "Sex and Gender," defined biological sexuality as 'sex' while social sexuality was called 'gender'. He suggested that people can talk about male and female, as well as discuss masculinity and femininity. Even though biological and social sexuality is often mixed up in reality, these two terms are not necessarily closely linked in one-on-one relationships, but they should have their own independent components (Tripp 2000). Biological sexuality refers to the differences between men and women due to their sex chromosomes. Social sexuality refers to a particular social culture in which men and women are expected to have different behavior and characteristics, hence having different roles that are based on cultural attributes.

Sexual differences can be found in emotions, motivations, cognition, and social behavior (Gardner et al. 1999). In addition, proven studies have also found that gender is related to work ethics and values (Viswesvaran and Ones 2004). For example, previous experiences show that women have better interpersonal skills in the workplace while men have better professional skills. Furthermore, women are less aggressive and competitive as well as less likely to overestimate their performance (Fletcher 1999; Wahn 2003). In addition, female students usually have lower performance in male-dominant subjects such as mathematics and computer science (Busch 1995). Men have more positive attitudes about using computers, while women have been shown to lack motivation related to learning computers skills (Broos 2005).

## 3. Research Model

Customers with different personality traits might have different preferences in respect to different types of products and services. The same also applies for customer knowledge preferences. That means that customer knowledge preferences could vary according to different personality traits. Hence, this research uses the five personality traits (emotional stability, extraversion, openness, agreeableness, and conscientiousness) as independent antecedents of customer knowledge preferences. At the same time, this research utilizes gender as a moderating variable to further investigate all of the relationships between the five personality traits and customer knowledge preferences. The research framework is depicted in Fig. 1.

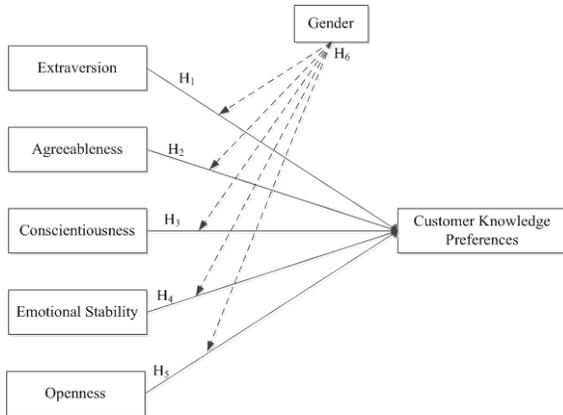


Fig. 1. Research model

Extroverts usually are longing for social recognition, acclaim, status, exhibition and power (Costa and McCrae 1988). This study suggests that customers with extraversion personality traits usually are more proactive and sociable and are more engaged in social activities. Therefore, they are more willing to interact with their friends and family or even salespersons. Such interactions allow these customers to retrieve more information and improve their social activities. In order to have more interactions, they will collect information related to the products or services of interest. Hence, the following hypothesis is proposed:

**H1: Extraversion will be positively related to customer knowledge preferences.**

Agreeableness is about being warm, having good personality, being willing to help others, able to forgive others, to believe others and to be straightforward (Goldberg 1992). This study perceives that customers who score high on agreeableness will be more easy-going, considerate, and willing to help others. Hence, it is assumed that agreeable customers are more willing to listen to suggestions provided by their friends or marketing personnel, as well as in order to help others, and these customers continuously enrich themselves in order to have more knowledge (Digman and Inouye 1986). Therefore, this research proposes the following hypothesis:

**H2: Agreeableness will be positively related to customer knowledge preferences.**

Conscientiousness is about being equipped with organizational skills, passion towards a job, self-regulation, punctuality, morals, structure, enthusiasm, and perseverance (Costa et al. 1991). This study suggests that customers with high levels of conscientiousness will emphasize whether or not the provided products and services satisfy their needs, and hence are conscious with regard to making every purchase decision (Barrick and Mollnt 1993). In order to make the right purchase decision, such customers will collect as much information as

possible about the products and services under consideration. Therefore, this study proposes the following hypothesis:

**H3: Conscientiousness will be positively related to customer knowledge preferences.**

Individuals with high levels of emotional stability are characterized as not being anxious, envious, emotional, or tense. On the contrary, individuals that have high levels of neuroticism are characterized as being unstable and emotional (De Feyter et al. 2012). Hence, in this research, it is assumed that customers with higher emotional stability will be calm and rational when purchasing products or services and will make purchases based on their own needs and will try to find products and services that fit these needs. The higher the emotional stability the higher the tendency of the customers to collect information related to products and services, as well as the higher the tendency to decide the best purchase based on this knowledge. Therefore, this research proposes the following hypothesis:

**H4: Emotional stability will be positively related to customer knowledge preferences.**

Individuals who score high on openness are more likely to have curiosity, a wide variety of interests, creativity, originality, rich imagination and modernity (Saleem et al. 2011). Therefore, this study assumes that the more open customers are, the less they will be influenced by previous experiences and cultures, and they will be more open to accepting different things and values. In other words, the more open a customer is, the more likely he/she will be to accept different opinions and perspectives as well to be more willing to learn new things and absorb new experiences (Lepine and Van 2001; Walczuch and Lundgren 2004). Hence, this study proposes the following hypothesis:

**H5: Openness will be positively related to customer knowledge preferences.**

Studies have shown that gender differences indeed affect behavior, and these studies also have suggested that society has different recognition and expectations of men and women according to gender-related personality differences (Beatty and Ferrel 1998; Meyers-Levy and Maheswaran 1991). For example, males have better mood stability than women (Costa et al. 1991). When choosing and buying a product, males focus on the functions, while females tend to focus on the aesthetics and trends (Shen et al. 2002 ; Zhang et al. 2002). While extrovert men tend to have an extraversion facet for excitement seeking, extrovert women tend to have an extraversion facet for warmth (Costa et al. 1991). Lin et al. (2001) explained the relationship between service provider personality and customers' perceptions of service quality across gender and suggest that the relationship between personality and service quality is moderated by customer gender. Therefore, in this research,

it is recognized that customers with different genders and different personality traits will collect knowledge related to the preferred products and services based on their own preferences. Hence, this research has the following hypotheses:

**H6: Gender has a significant influence on the relationship between the big five personality traits and customer knowledge preferences.**

**H6-1: Gender has a significant influence on the relationship between extraversion and customer knowledge preferences.**

**H6-2: Gender has a significant influence on the relationship between agreeableness and customer knowledge preferences.**

**H6-3: Gender has a significant influence on the relationship between conscientiousness and customer knowledge preferences.**

**H6-4: Gender has a significant influence on the relationship between emotional stability and customer knowledge preferences.**

**H6-5: Gender has a significant influence on the relationship between openness and customer knowledge preferences.**

## 4. Methodology

### 4.1 Sampling

The integrity of collected data can be affected due to low willingness of respondents to participate. Therefore, purposive sampling was used in this study in order to ensure that respondents had high willingness to participate in the research. Afterwards, the online questionnaire was sent to the respondents via e-mail and posted on popular online discussion forums and famous social network sites explaining the purpose of the study, assuring respondents of anonymity, and underlining that participation in the study was voluntary. The link to the online questionnaire for this study was distributed to the respondents at the beginning of March of 2014, with 244 questionnaires returned by April of 2014. Among the returned questionnaires, 16 were incomplete or unclear and therefore were discarded; while 228 considered valid for further statistical analysis. Table 1 shows the demographic breakdown of the sample, which includes gender, marital status, and age.

### 4.2 Measures Instruments

For the purposes of this study, an in-depth review of the literature on customer knowledge preferences, personality traits and gender was conducted in order to clarify the research constructs. Based on the literature, dimensions of each measure were identified to develop the draft questionnaire. The definitions of the constructs, variables

and references are shown in Table 2. The draft questionnaire was tested by some scholars and experts, which led to minor modifications in the wording, sequence, format and layout, question content and level of difficulty. After making sure that each item did not have any problems, the final questionnaire was sent to all respondents via an e-questionnaire. All of the items were measured on a seven-point Likert-type scale, ranging from “strongly disagree” to “strongly agree.” The final questionnaire items are shown in Appendix A.

Table 1: Demographic characteristics of the respondents (n= 228)

Variable	Type	Percentage
Gender	Male	44.3
	Female	55.7
Marital status	Married	26.8
	Single	71.5
	Others	1.8
Age	≤ 20	31.1
	21-30	42.2
	≥ 31	26.7

Table 2: Definitions of constructs, variables and references

Constructs	Variables	References
Customer Knowledge preferences	<b>Product Quality</b> Customer demands have been fulfilled by the physical delivery performance.	Gibbert et al. (2002); Hedaa and Ritter (2005); Liao et al. (2010)
	<b>Customer Service</b> Customer orders are efficiently and effectively handled.	Lim and Palvia (2001); Wayland and Cole (1997); Yeung et al. (2008);
	<b>Effective Sales personnel</b> The salesperson's understanding of product and conditions of use, and his/her ability to solve problems	
	<b>Effective Communication</b> Employee's technical ability to communicate with customers	
	<b>Social Compliance</b> Accountability and responsibility regarding human rights, working conditions, and environmental concerns.	
	Personality Traits	<b>Neuroticism/ Emotional stability</b> The tendency to experience unpleasant emotions easily, such as anger, anxiety, depression, and vulnerability.
<b>Extraversion</b> Energy, positive emotions, surgency, assertiveness, sociability and the tendency to seek stimulation in the company of others, and talkativeness.		
<b>Openness</b> It reflects the degree of intellectual curiosity, creativity and a preference for novelty and variety a person has.		
<b>Agreeableness</b> A tendency to be compassionate and cooperative rather than suspicious and antagonistic towards others.		
<b>Conscientiousness</b> A tendency to be organized and dependable, show self-discipline, act dutifully, aim for achievement, and prefer planned rather than spontaneous behavior.		
Gender		It refers to a particular social culture in which men and women are expected to have different behavior and characteristics, hence having different roles, and is based on cultural attributes.

## 5. Results

Partial Least Squares (PLS) was implemented to analyze the data and to validate the psychometric properties of the scales and the strength and direction of the relationships among the variables (Cassel et al. 1999). The structural model describes the relationship among the latent variables

posited by substantive theory, and the measurement model describes the relationships between the observed variables and latent variables. As compared to covariance-based SEM techniques, PLS is less stringent with distributional assumptions, measurement scale type, and sample size requirement (Chin 1998; Fornell and Cha 1994). The minimal demands on distributional assumptions and sample size made PLS an appropriate analysis technique for this study. The research model shown in Fig. 2 was analyzed using the Smart PLS program.

### 5.1 The Measurement Model

Due to the fact that unidimensionality cannot be directly measured with PLS, but can be assessed using an exploratory factor analysis (EFA), this study applied EFA to establish whether the measurement items converge in the corresponding factor, whether each item loads with a high coefficient on only one factor, and that this factor is the same for all items that are supposed to measure it. An item loading is usually considered high if the loading coefficient is above 0.6 and is considered low if the coefficient is below 0.4. As for personality traits, FF03 and FF06-08 for extraversion, FF11, and FF14-16 for agreeableness, FF17, FF21, FF22 and FF24 for conscientiousness, FF29 and FF30-32 for emotional stability, and FF34 and FF36-38 for openness, were omitted due to factor loadings that were below 0.6 or not being classified into their default dimensions. As for customer knowledge preferences, CK04, CK08, CK12, and CK13 were omitted due to factor loadings that were below 0.6 or not being classified into their default dimensions. Finally, the measurement model of this study achieved good unidimensionality (Gefen and Straub 2005). This study initially specified a null model for the first-order latent variables, in which this study included no structural relationships. To assess the reliability of the measures, the Cronbach's alpha (CA), composite scale reliability (CR), and average variance extracted (AVE) were calculated. Table 3 shows that the CR and Cronbach's alpha exceed 0.780 (Nunnally and Bernstein 1994); the AVE of all measures compellingly exceed the cut-off value of 0.50 (Chin 1998). Moreover, Table 4 shows that the square root of the AVE exceeds the intercorrelations of the construct with the other constructs in the model, in support of discriminant validity (Fornell and Larcker 1981). Additional support for discriminant validity comes through inspection of the cross-loadings, which are not substantial in magnitude compared with the loadings (Chin 1998; Fornell and Larcker 1981). As shown in Tables 3 and 4, it can be found that internal consistency reliability, indicator reliability, convergent validity, and discriminant validity were assured for all of our measurement scales (Urbach and Ahlemann 2010).

Table 3: Psychometric Properties in Null Model for First-Order Constructs (n = 228)

	Construct	Items	Loading	CA	CR	R <sup>2</sup>	AVE
Personality traits	Extraversion	FF1	0.933	0.894	0.921		0.745
		FF2	0.939				
		FF4	0.796				
		FF5	0.770				
	Agreeableness	FF9	0.855	0.780	0.859		0.608
		FF10	0.844				
		FF12	0.768				
	Conscientiousness	FF13	0.630	0.862	0.899		0.690
		FF18	0.923				
		FF19	0.824				
		FF20	0.779				
	Emotional Stability	FF23	0.790	0.791	0.851		0.591
FF25		0.840					
FF26		0.839					
FF27		0.736					
Openness	FF28	0.644	0.873	0.913		0.724	
	FF33	0.860					
	FF35	0.812					
	FF39	0.917					
Customer knowledge preference	Product Quality	FF40	0.811	0.859	0.915	0.614	0.782
		CK1	0.912				
		CK2	0.919				
	Customer Service	CK3	0.817	0.868	0.919	0.709	0.792
		CK5	0.889				
		CK6	0.914				
		CK7	0.865				
	Effective Salesperson	CK9	0.915	0.914	0.946	0.808	0.853
		CK10	0.932				
		CK11	0.924				
	Effective Communication	CK14	0.910	0.797	0.908	0.715	0.831
		CK15	0.914				
	Social Compliance	CK16	0.920	0.890	0.932	0.635	0.820
		CK17	0.921				
		CK18	0.874				

†  $\alpha$  = Cronbach's alpha; CR = composite reliability; AVE = average variance extracted

Table 4: Mean, S.D., and intercorrelations of the Latent Variables for First-Order Constructs (n = 228)

Construct	Mean	S.D.	EX	AG	CO	ES	OP	PQ	CS	EC	ES	SC
EX	5.132	1.201	0.863									
AG	5.542	0.886	0.316	0.779								
CO	4.924	1.285	-0.079	0.168	0.831							
ES	3.360	1.238	-0.034	-0.227	0.242	0.769						
OP	4.977	1.100	0.394	0.452	-0.008	-0.116	0.851					
PQ	6.064	0.958	0.089	0.327	0.082	-0.202	0.270	0.884				
CS	5.778	1.049	0.163	0.303	0.096	-0.247	0.225	0.653	0.890			
EC	5.768	1.030	0.180	0.322	0.097	-0.178	0.234	0.565	0.642	0.912		
ES	5.603	1.082	0.152	0.299	0.062	-0.185	0.229	0.636	0.662	0.719	0.924	
SC	5.233	1.157	0.229	0.251	0.066	-0.073	0.121	0.419	0.542	0.677	0.684	0.905

† Square root of the AVE on the diagonal.

† EX = Extraversion; AG = Agreeableness; CO = Conscientiousness; ES = Emotional Stability; OP = Openness; PQ = Product Quality; CS = Customer Service; EC = Effective Communication; ES = Effective Salesperson; SC = Social Compliance

In Table 5, this study includes the CA, CR and AVE of the measures in the second-order model; these also show the CA and CR to be greater than 0.8 and the AVE greater than 0.5, which provides evidence of reliable measures. As this study demonstrates in Table 5, the loadings of the first-order latent variables on the second-order factors exceed 0.7, which is in support of the second-order model of customer knowledge preferences.

Appendices B to G respectively present the psychometric properties in the null model for the first-order constructs, mean, S.D., and intercorrelations of the latent variables for the first-order constructs, and also provide the assessment of the second-order model of customer knowledge preferences for the female and the male subgroups. As can

be seen in the appendices, internal consistency reliability, indicator reliability, convergent validity, and discriminant validity were assured for all items for each sample (Urbach and Ahlemann 2010).

Table 5: Assessing the Second-Order Model of Customer knowledge preferences (n = 228)

Customer knowledge preference				
	Loading	CA	CR	AVE
Product Quality	0.784			
Customer Service	0.842			
Effective Communication	0.899	0.940	0.948	0.567
Effective Salesperson	0.846			
Social Compliance	0.797			

\*p < 0.05; \*\*p < 0.01; \*\*\*p < 0.001.

### 5.2 The Structural Model

The assessment of the structural model was conducted separately for the full sample and the two subgroups, as recommended by Ahuja and Thatcher (2005), Carte and Russell (2003), and Saleem et al. (2011). Fig. 2 shows results for the full sample. As can be seen, agreeableness (path = 0.228, p < 0.01) is significantly and positively related to customer knowledge preferences. Emotional stability (path = -0.072, p < 0.05) is significantly and negatively linked to customer knowledge preferences. These results provide support for hypotheses H2. Although extraversion, conscientiousness, and openness are not significantly related to customer knowledge preferences (H1, H3, and H5), as expected, they are positive. The model explains 17.1% of the variance of customer knowledge preferences.

Figs. 3 and 4, respectively, present the results for the female and male subgroups. As can be seen from these figures, the positive relationship between agreeableness and customer knowledge preferences (path = 0.224, p < 0.05) is stronger for women than for men. The results also show that the relationship between emotional stability and customer knowledge preferences (path = -0.412, p < 0.001) is negative and significant for men but is not significant for women. The model tested with this female subgroup explains 14.3% of customer knowledge preferences whereas the model tested with the male subgroup explains 32.0% of customer knowledge preferences.

Table 6 presents a summary of the results. When comparing the two subgroups, the results show almost same patterns between women and men for each personality trait. Indeed, the statistical comparison between the female and male path coefficients for each hypothesis indicates significant differences only for emotional stability (H6-4). Moreover, emotional stability is positively related to customer knowledge preferences for women, and

it is negatively related for men. These results provide support only for hypothesis (H6-4). That is, gender has a significant influence on the relationship between emotional stability and customer knowledge preferences.

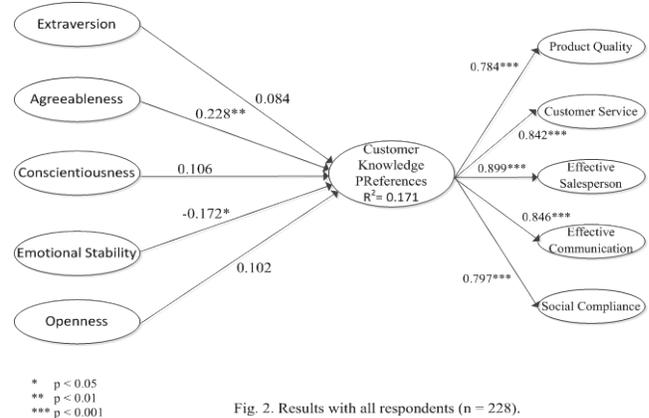


Fig. 2. Results with all respondents (n = 228).

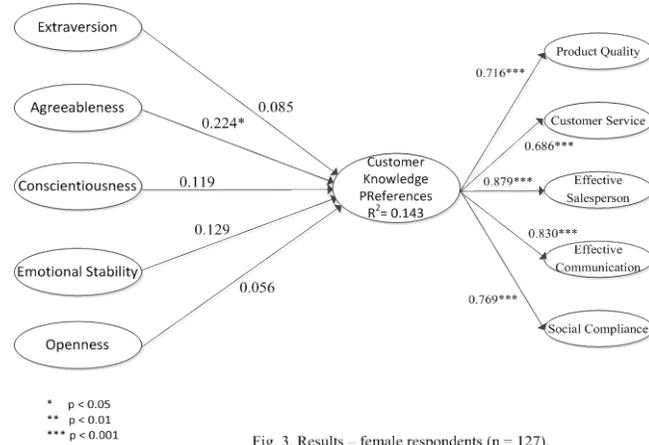


Fig. 3. Results – female respondents (n = 127).

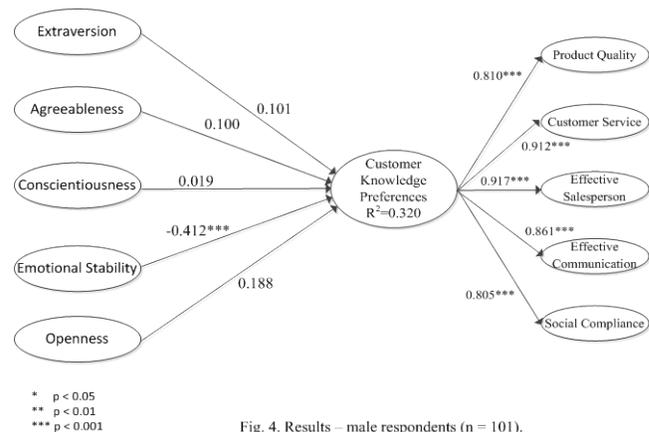


Fig. 4. Results – male respondents (n = 101).

Table 6: The summary of the results

Overall sample	R² =	Female R² = 0.143	Male R² = 0.320	Male vs. female
Path	t-Value	Path	t-Value	t-Value

H <sub>1</sub>	0.084	1.327						
H <sub>e1</sub>			0.085	0.577	0.101	1.445	0.097	
H <sub>2</sub>	0.228	2.765**						
H <sub>e2</sub>			0.224	2.160*	0.100	1.073	0.856	
H <sub>3</sub>	0.106	1.242						
H <sub>e3</sub>			0.119	1.346	0.019	0.165	0.685	
H <sub>4</sub>	-0.172	2.436*						
H <sub>e4</sub>			0.129	1.134	-0.412	3.893***	3.458***	
H <sub>5</sub>	0.102	1.192						
H <sub>e5</sub>			0.056	0.554	0.188	1.852	0.900	

## 6. Discussion

The results suggest that the big five personality traits are indeed significantly related to specific customer knowledge preferences. More specifically, individuals who scored high on extraversion, agreeableness, conscientiousness, and openness and low on emotional stability reported higher customer knowledge preferences. Moreover, agreeableness and emotional stability related to customer knowledge preferences, respectively, exhibit significant positive and negative relationships. This means that when buying products, customers make their purchases not only based on their motivations, but also according to their personality traits. This shows that products with the same attributes can create different preferences and selections due to the variety in customers' personality traits. This study suggests that the big five personality traits can be significant factors that should be considered when an enterprise would like to gain a better understanding of the antecedents of customer knowledge preferences due to the fact that they elaborate up to 17% of the variance in customer knowledge preferences from the overall sample. Furthermore, taking gender into account allowed this study to achieve a finer understanding of the antecedents of customer knowledge preferences. The results presented in Table 6 clearly show that emotional stability and customer knowledge preferences are associated differently for the two genders. The results indicate that women who scored higher on agreeableness reported higher customer knowledge preferences, while men who scored lower on emotional stability reported higher customer knowledge preferences. In other words, when women have a greater tendency to be compassionate and cooperative rather than suspicious and antagonistic towards others, they emphasize customer knowledge more; men who have a greater tendency to experience unpleasant emotions easily, such as anger, anxiety, depression, and vulnerability, emphasize customer knowledge more. Based on the additional investigation, this might be due to the fact that men's high emotional stability can be easily influenced by tension and may also trigger guilt and guilty thoughts. This might clarify why emotional stability is positively correlated with introjected regulation (Clark and Schroth 2010; Phillips et al. 2003). In such situations, men always try to avoid

anxiety or blaming or to enhance their ego. With this motivation and under these circumstances, men usually do a certain thing to prove their capability (or to avoid failure) in order to maintain their value. For example, improving customer knowledge is aimed at being able to have discusses with friends and to increase personal value from a friend's perspective. For the female sub-sample, the big five personality traits explain 14.3% of the variance in customer knowledge preferences as compared to 32.0% for the male sub-sample.

This research provides a better understanding of the role of individual differences in regard to customer knowledge preferences. The findings from this study suggest that the big five personality traits and gender play an important role in customer knowledge preferences and thus may also be important antecedents of other consumer behavior-related individual beliefs and perceptions. Moreover, the findings may be useful in understanding customer needs and customers' behavioral patterns based on customers' personality traits and gender, and they may additionally contribute to personalizing and establishing relationships with customers thus enabling companies to provide more personalized products and service offerings (Ngai et al. 2009).

Although the findings of this study have a number of meaningful implications for practitioners, the study has some limitations. First, this research applied a purposive sampling method and may have obtained a slightly inadequate number of respondents. The generalizability of the results to a more wide-ranging workforce may be limited, and thus it is suggested that future research should apply a random sampling method to collect more responses and increase the generalizability. Second, Teng et al. (2011) referred to Thompson's (2008) international English big-five mini-markers to develop the traditional Chinese version. The traditional Chinese version is one of the shorter measures of the five factor model of personality, and this study encountered problems with it resulting in it being necessary to drop many items. For future studies, researchers may consider using another measurement instrument such as the 60-item NEO five-factor inventory (Costa and McCrae 1992). Third, this study investigated the relationship among personality traits, gender and customer knowledge preferences in a Taiwanese context, which contains a specific set of societal, cultural and linguistic attitudes and behaviors. Therefore, future research could extend this study to other regions of the world.

By introducing personality traits into customer knowledge preference research, this study has begun to examine the role of personality traits in differentiating individuals with low customer knowledge preferences versus individuals with high customer knowledge preferences. As such, future

research should examine the role of personality traits and gender as they relate to product quality, customer service, effective sales personnel, effective communication, and social compliance (the main attributes of customer knowledge). According to Porter's (1985) value chain, industries, such as logistics, manufacturing, service and hi-tech industries perform specific activities to deliver a valuable product or service for their customers. Therefore, each industry should conduct analyses on the role of personality traits and gender among the preferences for product quality, customer service, effective sales personnel, effective communication, and social compliance in order to provide more personalized product and service offerings for individuals.

## 7. Conclusions

Enterprises have transformed themselves from being product-oriented to being customer-oriented. At the same time, they have started to interact with customers to acquire knowledge about customer needs and preferences for products and services. For enterprises, understanding and utilizing customer knowledge is very crucial to such things building a customer database, designing sales procedures for certain customers, creating new products and services, and so on. Salojärvi and Sainio (2010) pointed out that utilizing customer knowledge will become a success factor by which an enterprise can manage, acquire, and retain key points about its customers. Khodakarami and Chan (2014) posited that acquiring customer knowledge and effectively utilizing it will enhance an enterprise's competitiveness. Therefore, enterprises should proactively understand their customers and create opportunities and value for them in order to improve their relationships. Furthermore, understanding the causes of individual beliefs about customer knowledge preferences is important for enterprises to enhance customer satisfaction and loyalty. In other words, it is crucial to understand customers' personality traits and gender differences to find out if there are any differences in customer knowledge preferences so that products and services that customers really desire can be provided.

The fact that this study showed that some personality traits are significantly related to customer knowledge preferences and that gender moderates the relationships gives credence to the notion that individuals may inherently differ in regard to their customer knowledge preferences. Hence, enterprises should understand gender differences and the personality traits of their customers and should conduct personality marketing in order to enhance the competitiveness of their products and services.

## References

- [1] Ahuja, M.K., Thatcher, J.B., 2005. Moving beyond intentions and toward the theory of trying: Effects of work environment and gender on post-adoption information technology use. *MIS Quarterly* 29 (3), 427-460.
- [2] Allport, G.W., 1961. *Pattern and Growth in Personality*. New York: Holt, Rinehart & Winston.
- [3] Bandura, A., 1997. *Self-efficacy : The exercise of control*. NY: Freeman.
- [4] Barrick, M.R., Mount, M.K., Judge T.A., 2001. Personality and performance at the beginning of the new millennium: what do we know and where do we go next?. *International Journal of Selection and Assessment* 9 (1-2), 9-30.
- [5] Beatty, S.E., Ferrell M.E., 1998. Impulsive buying: modeling its precursors. *Journal of Retailing* 74 (2), 169-191.
- [6] Broniarczyk, S.M., Griffin, J.G., 2014. Decision Difficulty in the Age of Consumer Empowerment. *Journal of Consumer Psychology* 24 (4), 608-625.
- [7] Broos, A., 2005. Gender and information and communication technologies anxiety: Male self-assurance and female hesitation. *Cyber Psychology and Behavior* 8 (1), 11-32.
- [8] Busch, T., 1995. Gender differences in self-efficacy and attitudes toward computers. *Journal of Educational Computing Research* 12 (2), 147-158.
- [9] Carte, T. A., Russell, C. J., 2003. In pursuit of moderation: Nine common errors and their solutions. *MIS Quarterly* 27 (3), 479-502.
- [10] Cassel, C., Hackl, P., Westlund, A.H., 1999. Robustness of partial least-squares method for estimating latent variable quality structures. *Journal of Applied Statistics* 26 (4), 435-446.
- [11] Cattell, R.B., 1943. The description of personality: basic traits resolved into clusters. *The Journal of Abnormal and Social Psychology* 38 (4), 476-506.
- [12] Chin, W.W., 1998. The Partial Least Squares Approach to Structural Equation Modeling. In G. A. Marcoulides (Ed.), *Modern Methods for Business Research*. New Jersey: Lawrence Erlbaum Associates.
- [13] Clark, M.H., Schroth, C.A., 2010. Examining relationships between academic motivation and personality among college students. *Learning and Individual Differences* 20 (1), 19-24.
- [14] Conant, J.S., White, C.J., 1999. Marketing program planning, process benefits, and store performance: an initial study among small retail firms. *Journal of Retailing* 75 (4), 525-541.
- [15] Costa Jr. P.T., McCrae, R.R., 1986. Personality stability and its implications for clinical psychology. *Clinical Psychology Review* 6 (5), 407-423.
- [16] Costa, P.T. Jr., McCrae, R.R., 1992. Revised NEO personality inventory (NEO-PI-R) and NEO five-factor inventory (NEO-FFI) professional manual. Odessa, FL: Psychological Assessment Resources, Inc.
- [17] Costa, P.T., McCrae, R.R., 1988. Personality in adulthood: A six-year longitudinal study of self-reports

- and spouse ratings on the NEO personality inventory. *Journal of Personality and Social Psychology* 54 (5), 853-863.
- [18] Costa, P.T., McCrae, R.R., Dye, D.A., 1991. Facet scales for agreeableness and conscientiousness: A revision of the NEO personality inventory. *Personality and Individual Differences* 12 (9), 887-898.
- [19] Day, G.S., Shocker, A.D., Srivastava, R.K., 1979. Customer-oriented approaches to identifying product markets. *The Journal of Marketing* 43 (4), 8-19.
- [20] De Feyter, T., Caers, R., Vigna, C., Berings, D., 2012. Unraveling the impact of the Big Five personality traits on academic performance: The moderating and mediating effects of self-efficacy and academic motivation. *Learning and Individual Differences* 22 (4), 439-448.
- [21] Dhar, R., 1999. The effect of time pressure on consumer choice deferral. *Journal of Consumer Research* 25 (4), 369-384.
- [22] Digman, J.M., 1996. Personality structure: Emergence of the five-factor model. *Annual Review of Psychology* 41(1), 417-440.
- [23] Fletcher, C., 1999. The implications of research on gender differences in selfassessment and 360 degree appraisal. *Human Resource Management Journal* 9 (1), 39-46.
- [24] Fornell, C., Cha, J., 1994. Partial Least Squares. In R. P. Bagozzi (Ed.), *Advanced Methods of Marketing Research*. UK: Blackwell Publisher.
- [25] Fornell, C., Larcker, D.F., 1981. Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research* 18 (1), 39-50.
- [26] Garcia-Murillo, M., Annabi, H., 2002. Customer knowledge management. *Journal of the Operational Research Society* 53 (8), 875-884.
- [27] Gardner, W.L., Gabriel, S., Lee, A.Y., 1999. "I" value freedom, but "we" value relationships: self-construal priming mirrors cultural differences in judgment. *Psychological Science* 10 (4), 321-326.
- [28] Gefen, D., Straub, D., 2005. A practical guide to factorial validity using PLS-Graph: Tutorial and annotated example. *Communications of the AIS* 16 (1), 91-109.
- [29] Gibbert, M., Leibold, M., Probst, G., 2002. Five styles of customer knowledge management and how smart companies use them to create value. *European Management Journal* 20 (5), 459-469.
- [30] Goldberg, L.R., 1981. Developing a taxonomy of trait-descriptive terms. In Fiske, D. W. *Problems with Language Imprecision: New Directions for Methodology of Social and Behavioral Science*. San Francisco, CA: Jossey-Bass. 43-65.
- [31] Goldberg, L.R., 1992. The development of markers of the big-five factor structure. *Psychological Assessment* 4 (1), 26-42.
- [32] Gregan-Paxton, J., 2001. The Role of Abstract and Specific Knowledge in the Formation of Product Judgments: An Analogical Learning Perspective. *Journal of Consumer Psychology* 11 (3), 141-158.
- [33] Hedaa, L., Ritter, T., 2005. Business relationships on different waves: paradigm shift and marketing orientation revisited. *Industrial Marketing Management* 34 (7), 714-721.
- [34] Jayachandran, S., Hewett, K., Kaufman, P., 2004. Customer response capability in a sense-and-respond era: The role of customer knowledge process. *Journal of the Academy of Marketing Science* 32 (7), 219-233.
- [35] John, O.P., 1990. The 'Big Five' factor taxonomy: dimension of personality in the natural language & in questionnaires. In L.A. Pervin (Ed.). *Handbook of personality: Theory and research* (66-100). New York: Guilford.
- [36] Khodakarami, F., Chan, Y.E., 2014. Exploring the role of customer relationship management (CRM) systems in customer knowledge creation. *Information & Management* 51 (1), 27-42.
- [37] Kotler, P., 2000. *Marketing management: analysis, planning, implementation and control*. 10th Ed., NJ: Prentice Hall.
- [38] LePine, J.A., Van, D.L., 2001. Voice and cooperative behavior as contrasting forms of contextual performance: evidence of differential relationships with big five personality characteristics and cognitive ability. *Journal of Applied Psychology* 86 (2), 326-336.
- [39] Li, T., Calantone, R.J., 1998. The impact of market knowledge competence on new product advantage: conceptualization and empirical examination. *Journal of Marketing* 62 (4), 13-29.
- [40] Liao, S.H., Chen, Y.J., Deng, M.Y., 2010. Mining customer knowledge for tourism new product development and customer relationship management. *Expert Systems with Applications* 37 (6), 4212-4223.
- [41] Lim, D., Palvia, P., 2001. EDI in strategic supply chain: impact on customer service. *International Journal of Information Management* 21(3), 193-211.
- [42] Lin, N., Chiu, H., Hsieh, Y., 2001. Investigating the relationship between service providers' personality and customers' perceptions of service quality across gender. *Total Quality Management* 12 (1), 57-67.
- [43] Meyers-Levy, J., Maheswaran, D., 1991. Exploring males' and females' processing strategies. *Journal of Consumer Research* 18 (1), 63-70.
- [44] Ngai, E.W.T., Xiu, L., Chau, D.C.K., 2009. Application of data mining techniques in customer relationship management: a literature review and classification. *Expert Systems with Applications* 36 (2), 2592-2602.
- [45] O'Reilly III, C.A., Chatman, J., Caldwell, D.F., 1991. People and organizational culture: A profile comparison approach to assessing person-organization fit. *Academy of Management Journal* 34 (3), 487-516
- [46] Pervin, L.A., 1993. *Personality: Theory and research* (6th Ed.). Oxford, England: John Wiley & Sons.
- [47] Phillips, P., Abraham, C., Bond, R., 2003. Personality, cognition, and university students' examination performance. *European Journal of Personality* 17 (6), 435-448.
- [48] Porter, M.E., 1985. *Competitive Advantage: Creating and Sustaining Superior Performance*. New York: Simon and Schuster.

- [49] Robbins, S.P., 2001. *Organizational Behavior* 9th. Ed. N.J.: Prentice Hall.
- [50] Rotter, J.B., 1966. Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs: General and Applied* 80 (1), 1-28.
- [51] Rowley, J., 2002. Eight questions for customer knowledge management in e-business. *Journal of Knowledge Management* 6 (5), 500-511.
- [52] Saleem, H., Beaudry, A., Croteau, A.M., 2011. Antecedents of computer self-efficacy: a study of the role of personality traits and gender. *Computers in Human Behavior* 27 (5), 1922-1936.
- [53] Salojärvi, H., Sainio, L.M., 2010. Organizational factors enhancing customer knowledge utilization in the management of key account relationships. *Industrial Marketing Management* 39 (8), 1395-1402.
- [54] Saucier, G., 1994. Mini-markers: a brief version of Goldberg's unipolar Big-Five markers. *Journal of Personality Assessment* 63 (3), 506-516.
- [55] Snyder, M., Gangestad, S., 1987. On the nature of self-monitoring: matters of assessment, matters of validity. *Journal of Personality and Social Psychology* 51 (1), 125-139.
- [56] Stoller, R.J., 1968. *Sex and Gender*. New York: Science.
- [57] Teng, C., Tseng, H.M., Li, I.C., Yu, C.S., 2011. International English Big-Five mini-markers: development of the traditional Chinese version. *Journal of Management (in Chinese)* 28 (6), 579-600.
- [58] Thompson, E.R., 2008. Development and validation of an international English Big-Five mini-markers. *Personality and Individual Differences* 45 (6), 542-548.
- [59] Tripp, A., 2000. *Gender*. USA: Palgrave Macmillan.
- [60] Tseng, S.M., 2009. A study on customer, supplier, and competitor knowledge using the knowledge chain model. *International Journal of Information Management* 29 (6), 488-496.
- [61] Tuominen, M., Rajala, A., Moller, K., 2004. Market-driving versus market-driven: divergent roles of market orientation in business relationships. *Industrial Marketing Management* 33 (3), 207-217.
- [62] Urbach, N., Ahlemann, F., 2010. Structural equation modeling in information systems research using partial least squares. *Journal of Information Technology Theory and Application* 11 (2), 5-40.
- [63] Viswesvaran, C., Ones, D.S., 2004. Importance of perceived personnel selection system fairness determinants: relations with demographic, personality, and job characteristics. *International Journal of Selection and Assessment* 12 (1-2), 172-186.
- [64] Wahn, J., 2003. Sex differences in competitive and compliant unethical work behavior. *Journal of Business and Psychology* 18 (1), 121-128.
- [65] Walczuch, R., Lundgren, H., 2004. Psychological antecedents of institution-based consumer trust in e-retailing. *Information & Management* 42 (1), 159-177.
- [66] Wayland, R.E., Cole, P.C., 1997. *Customer connections: new strategies for growth*, Harvard Business School Press.
- [67] Yeung, A.H.W., Lo, V.H.Y., Yeung, A.C.L., Cheng, T.C.E., 2008. Specific customer knowledge and operational performance in apparel manufacturing. *International Journal of Production Economics* 144 (2), 520-533.
- [68] Yoon, C., Cole, C.A., Lee, M.P., 2009. Consumer decision making and aging: Current knowledge and future directions. *Journal of Consumer Psychology* 19 (1), 2-16.
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