Multicultural Education

Brand relationships and risk: influence of risk avoidance and gender on brand consumption

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A B S T R A C T

Recent brand relationship research has paid attention to brand love, brand credibility, and brand loyalty. In market and society, various collaborations and co-creations derived from brand relationships generate various social network markets and open business innovations. Brand relationships and collaborative forms heavily depend on risk taking or risk avoidance. However, few studies have examined how brand relationship is related to risk avoidance. The purpose of this study is to investigate the influence of risk avoidance and gender on brand trust, brand credibility, brand loyalty, and brand choice overload. We review relevant literature on brand relationship and risk avoidance and develop research hypotheses about brand relationship and risk. We find that consumers' risk avoidance influences brand trust, brand credibility, brand loyalty, and brand choice overload. We suggest implications about how brand relationships can promote social network markets and open business innovations through social construction process.

1.   INTRODUCTION

Recent research on brand relationships such as brand love, brand credibility, brand loy- alty and brand choice overload suggests several important aspects of global marketing. One is for an interaction between brand relationships and social network markets. Recent emerging creative markets in various market areas involve intensive collaborations and networks based on brand trust, love, and credibility. In market and society, collaborations and co-creations derived from brand relationships generate various social network markets and open business innovations (Potts, et al., 2008a; 2008b). Currently, creative collaborations emerge from public institutions to nonprofit organizations, to universities, to business companies through constructive relationships between providers and cus- tomers (Krishna, 2014; Kodama and Shibata, 2015). Networks change the picture of mar- ket and technology through knowledge diffusion and collective intelligence (Surowiecki, 2004; Yun et al., 2015). It is expected that emerging brand networks from current brand relationships can significantly influence current market power through new digital tech- nologies in a global network market. Our findings about brand relationships and risk avoidance will contribute to exploring various relationships between brands and customers and the role of brand communities involved in open innovation of fashion industry.

A second aspect for global marketing is the new social marketing perspective beyond conventional benefit-maximized marketing. Brand relationship theory suggests that network-based marketing and collaboration itself can create reciprocal and sharing relationships between suppliers and consumers. Brand love, brand trust, and

brand credibility generate various types of social relationships in a globalized network market. It is also noted that the formation and development of brand relationships mainly depend on risk and uncertainty embedded in the brand relationship. The impact of risk on brand relationships can generate or destroy the formation and diffusion of the rela- tionship. Risk avoidance can consolidate or weaken the brand relationship. Risk propensity can influence consumers' attitudes about various brand relationship aspects which leads to facilitating or constraining customer creation. However, little knowledge and evidence exists regarding under what circumstances the relationship emerges and prospers and regarding how it evolves across different markets and cultures. Little re- search has yet explored an empirical connection between brand relationship and risk.

A recent trend in marketing involves a change in focus from gaining to retaining cus- tomers (Peppers & Rogers, 2005). The change is motivated by profit resulting from loyal customers due to their increased purchases, willingness to pay regular prices, and positive word-of-mouth (Reichheld&Sasser, 1990). The change in focus has resulted in a new emphasis on relationship marketing, that is, "marketing with the conscious aim to develop and manage long-term and/or trusting relationships with customers" (Bennett, 1995).

The purpose of this study was to investigate the influence of risk avoidance and gen- der on brand trust, brand credibility, brand loyalty, and brand choice overload. We re- view relevant literature on brand relationship and risk avoidance and develop research hypotheses about brand relationship and risk. We investigate the nature of the relation- ship and suggest implications for social network market and open business innovations.

2. RELEVANT LITERATURE REVIEW

2.1 Overview on brand relationship and social network markets

Social network strongly influences marketing and consumer behavior through brand community, brand trust, and on- or off-line social interactions (Ballester-Delgado and Aleman-Munuera, 2001; Caceres and Paparoidamis, 2007; Muniz and O'Guinn, 2001;Schau, Muniz, and Arnould, 2009). Social network markets consist of brand on- or off- line communities and provide various brand related social activities. For instance, web- based social networks produce various types of brand communities, which can sway brand relationship such as brand trust, credibility, and loyalty. The degree of concrete or fragile brand relationship is increasingly dependent on social networks. In this sense, the nature of brand relationship from social network perspective essentially produces brand trust, brand credibility, and brand loyalty. Consumer-brand relationship theory (Fournier, 1998) suggests a sincere relationship between consumers and brands as being trustworthy or devoted partners in an interactive relationship. In other words, brand relationships formed through various social networks build brand trust, credibility, and loyalty. The inherent frame of brand relationships from social network marketing emphasizes both non-economic elements and risk avoidance, which also depends on personal characteristics such as gender and age. This generates several research issueson brand relationship and risk. First, brand relationships can provide functional, psy- chological, social and emotional benefits (Aaker, 1996, 2009a, 2009b; Keller, 1993; Park, Jaworski, &Maclnnis, 1986). These non-economic elements become increasingly im- portant to emerging creative social markets such as on-line business and e-commerce in a globalized network economy. Failure to provide benefits as promised or implied by marketing entails risks for consumers as well as companies. As companies aspire to establish relationships with their customers, it becomes essential to understand the na- ture of consumer-brand relationships. Second, it is difficult to form an initial brand relationship due to risk from a high level of uncertainty. However, the relationship is concretely formed through accumulated credible interactions. The degree of risk avoid- ance or risk taking can influence the formation of a brand relationship. Third, the theory of brand personality suggests that gender, age, and other human traits can influence brand relationships such as brand trust and loyalty (Sung and Kim, 2010). In the following, we review key theoretical issues on risk avoidance, gender impact on risk behavior, and brand relationships such as trust and credibility.

2.2 Risk Avoidance

"Risk-taking is the degree to which an individual reports not only being willing to try new products, activities, and situations, but welcomes the stimulation of the newness as well" (Bearden, Netemeyer, & Mobley, 1993). According to Sheth and Venkatesan's (1968) risk- taking theory, consumers experience differing degrees of uncertainty in the purchase decision-making process. Consumers may attempt to reduce the risk by relying on some idea or person. For example, consumers might seek information to reduce risks by relying on brand names, brand images, or fashion leaders' opinions. When consumers feel vulner- able to risk during product purchase, they may rely on a strong consumer-brand relation- ship (e.g., brand trust, brand loyalty, brand credibility) because they believe the brand relationship can reduce risk.

Consumers often find themselves in a situation of decision ambiguity (Muthukrishnan, 1995) when shopping for apparel. Degree of ambiguity depends on the amount, type, and reality of information (Ellsberg, 1961). Studies have characterized ambiguity as resulting from missing information that is relevant (e.g., Camerer& Weber, 1992; Heath &Tversky, 1991). To reduce ambiguity, individuals with higher risk avoidance may recall previous ex- periences and product knowledge. For instance, Cho and Workman (2014) found that participants who were tolerant of risk-taking (low risk avoidance) tended not to use their previous experience and knowledge but used marketer-dominated sources such as Inter- net, fashion magazines, and catalogs. These information sources are risky because their goal is to persuade consumers to purchase products. Participants with lower tolerance for risk-taking (high risk avoidance) used all sources of information more than those with a greater tolerance for risk-taking (low risk avoidance).

2.3   *Gender and consumer behavior*

Despite the importance of gender differences in consumer behaviour, little is known about how men and women differ in risk avoidance or in brand relationship variables such as brand trust or brand credibility. Women tend to have greater tolerance for risk-taking than men in terms of willingness to try new or unusual products and enjoyment from thestimulation of newness (Cho & Workman, 2014). Women are more willing than men to adopt a fashion innovation earlier than other consumers—a risky consumer behavior (Workman & Cho, 2012) and are more likely than men to purchase products impulsively (Chen, 2001). Other research (that did not examine risk related to purchasing apparel) found that women (compared with men) are more open to uncertain and unstructured contexts (Maio&Esses, 2001; Washburn, Smith, &Taglialatela, 2005), are disinclined to take risks (e.g., Wagner, 2001) or that men and women did not differ in tendency for risk taking (e.g., Maxfield et al. 2010). Research has found that women score higher than men on brand sensitivity (Beaudoin&Lachance, 2006; Warrington & Shim, 2000) and brand consciousness (Workman & Lee, 2013).

2.4   *Brand trust & brand credibility*

Brand trust refers to a consumer's confidence in a brand's reliability and integrity (De Wulf, Odekerken-Schro¨der, &Iacobucci, 2001). Customer trust in a brand is an essential component of relationship marketing. Brand benefits can enhance customers' trust and loyalty (Lee, Ha, &Widdows, 2011). Brand trust is one means to reduce uncertainty when customers feel vulnerable (Chaudhuri& Holbrook, 2001). Consumers who lack confi- dence in a brand are not likely to develop brand loyalty (De Wulf et al., 2001). Brand loy- alty is linked with number and frequency of repeat purchases, quantity of the product purchased, and the price consumers are willing to pay (Chaudhuri& Holbrook, 2001). Brands that reliably provide a unique functional and emotional experience can encourage consumers' brand loyalty (Lin, 2010) and brand trust (Lee &Widdows, 2011). Brand cred- ibility refers to "the believability of the product information contained in a brand, which requires that consumers perceive that the brand has the ability (i.e., expertise) and willing- ness (i.e., trustworthiness) to continuously deliver what has been promised" (Erdem&Swait, 2004, p.192). Erdem and Swait (2004) found that brand credibility influenced con- sumers' brand choice and consideration for purchasing the brand.

2.5   *Brand credibility and user based open innovation*

Recent research suggests that dynamic concurrent digital environments such as smart mobile devices, peer-to-peer web characteristics and open source movements have a considerable impact on brand power (e.g., brand credibility, brand trust) and open innovation (Lee & Lee, 2015). In particular, customers or users of smart mobile devices based on web tools and environments with a community business model can create nu- merouscrowdsourcing companies (Della Corte et al., 2015; Han and Cho, 2015; Howe, 2008; Page, 2007; Surowiecki, 2004).

In highly competitive market environment, every brand in the fashion industry faces   a credibility crisis due to a growing vigilant consumer base well-versed in vibrant col- laborative digital web circumstances. This fashion crisis operates to push out old brands and pull in new ones through various innovative processes. Recent studies have addressed how open innovation can contribute to co-creating a new brand and consoli- dating a brand's credibility in the fashion industry (Brabham, 2010; Nickell, 2010). One example is the 'Threadless' model used to form a Chicago web-based T-shirt company (Threadless.com). In 2000, Jake Nickell and Jacob DeHart founded an online commu- nity where customers submit their own T-shirt designs and select which designs toproduce through evaluating all the designs submitted and exchanging ideas at their own social networking sites. This is an amazing success story involving open innovation (Brabham, 2010; Nickell, 2010). A flock of amateur designers rather than star designers, started up the internet-based T-shirt company. This is an example of a community- based crowdsourcing business model through social and collaborative networks in the apparel and accessories industry.1 Brabham (2010) describes the Threadless model as a good

online crowdsourcing production model with crowd wisdom similar to iStock- photo.com and InnoCentive. Overall, user based open innovation can coproduce a new star brand and strengthen its credibility.

There is, however, little knowledge and empirical evidence about the relationship be- tween open innovation and brand credibility. While there may be a simultaneous rela- tionship between them, it is expected that sustainable open innovation can generate strong brand credibility through customer engagement and collaborative development. Brand credibility can result from customer based open innovation with various risks and challenges. The impact of open innovation on brand credibility mainly depends on risk characteristics embedded in its innovation process.

Both strong brand credibility and open innovation involve risk-taking, rather than risk-avoidance. The inherent relationship between brand credibility and open innovation is likely to evolve through risk taking. Little research yet exists on this emer- ging topic between brand credibility, risk, and open innovation. In this paper, we first attempt to explore how brand credibility is related to risk avoidance (or risk taking), which can lead to constraining (or facilitating) open innovation in fashion and clothing markets. Little research has yet touched on the complex relationships among brand credibility, risk attitude, and open innovation.

2.6   Brand credibility and social construction

A wide variety of variables such as fashion knowledge and fashion engagement in- fluencefashion emergence. Product credibility within certain industries varies within different social, cultural, and institutional contexts (Berger and Luckmann, 1967; Fairhurst and Grant 2010; Williams and Edge, 1996). The credibility of a fashion brand also depends on unique characteristics within the fashion industry through a social construction process. For instance, the fashion industry faces the 'Megaphon Effect' (McQuarrie et al., 2013) from numerous fashion bloggers and fashion crowds as well as fashion leaders. In addition, a variety of fashion informa-   tion sources from magazine writers, editors, designers, models, and fashion blog- gers construct the nature of the fashion industry (Polegato and Wall, 2009). Brand credibility and brand reputation are socially formed from various interactions between and among fashion leaders and consumers. In particular, leading fashion companies are likely to easily accumulate their credibility and reputation through open social construction process with their customers and citizens.

2.7   Brand choice overload

In the consumer market a growing number of options have resulted in choice overload along with resultant consumer feelings of confusion and uncertainty (Schwartz, 2004). The amount and complexity of choices will at some point exceed the choice capacitiesof many consumers (Berg &Gornitzka, 2012). The vast and ever-changing stream of available products is a major challenge for consumers. Similar products are often sold   at different prices in different stores, and prices do not necessarily indicate quality. Consumer choice includes dozens, perhaps even hundreds, of different brands. Con- sumers cope with choice overload in various ways, for example, by relying on trust as a means of reducing complexity (Luhmann, 1979). Another coping mechanism used by consumers is to reduce available alternatives by selecting only familiar, well-known brands–brands they believe they can trust.

3.   RESEARCH FOCUS AND METHOD

3.1   Research purpose

The perspective of social network suggests that brand relationships should include trust, credibility, and loyalty in brand marketing. It is likely that brand trust, brand credibility, brand loyalty, and brand choice overload are strongly related to perceived risks involved in purchase decisions. Brand relationships representing brand trust and brand credibility are likely to be associated with risk avoidance, which can be dependent on gender. However, there is little research to examine the links among these variables. Thus, it is meaningful to explore if men and women differ in their re- sponse to brands or in their subsequent consumer-brand relationships. Therefore, the purpose of the study was to investigate the influence of risk avoidance and gender on brand trust, brand credibility, brand loyalty, and brand choice overload (see Fig. 1). The following hypotheses were proposed:

> *H1: Participants high (vs. low) in risk avoidance will differ in brand trust.*
>
> *H2: Participants high (vs. low) in risk avoidance will differ in brand credibility.*
>
> *H3: Participants high (vs. low) in risk avoidance will differ in brand loyalty.*
>
> *H4: Participants high (vs. low) in risk avoidance will differ in brand choice overload.*

H5: Women and men will differ in brand trust.

H6: Women and men will differ in brand credibility.

H7: Women and men will differ in brand loyalty.

H8: Women and men will differ in brand choice overload.

Fig. 1 Research Framework

Environment of Social Network Markets

Risk Avoidance →
Brand Trust
Brand Credibility
Brand Loyalty
Brand Choice Overload

Gender →
Brand Trust
Brand Credibility
Brand Loyalty
Brand Choice Overload
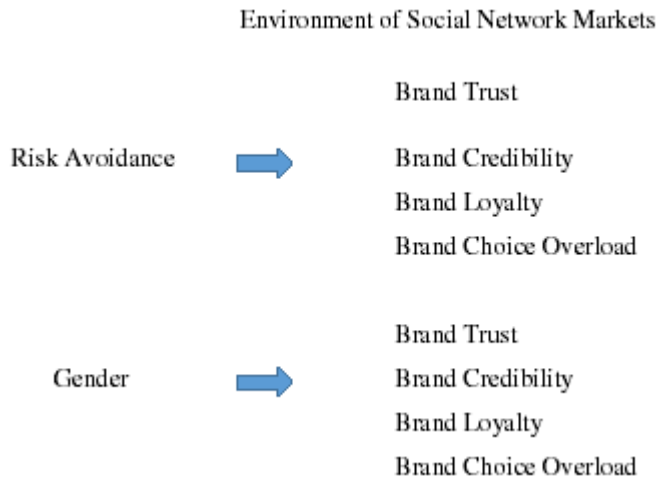
4. RESEARCH METHOD

4.1 Survey participants

Participants in this study were U.S. university students. In the U.S., in 2014, there were 21.6 million college students, 58 % female and 42 % male, estimated to have a spending power of $545 billion with $163 billion of that being discretionary spending (College Explorer'14, 2015; Back to school statistics, 2015). University student consumers are interested in fashion; apparel shopping is one activity that ranks high with these Mil- lennials (16–34 year olds) in enjoyment, knowledge, and overall spending (Barton, Koslow, Fromm, & Egan, 2012). The 2014 college market study reported that college stu- dents spend $18.6 billion dollars on apparel (the third highest category following food and automotive) along with $9.8 billion on personal care products, and $7.5 billion on cos- metics. Millenials use social media to communicate their preferences and influence others' choices; Burger (2013) found 86 % of students used the social media site Facebook regu- larly with 34 % using it to stay up-to-date with brands. According to Allen (2014), many retailers connect with these tech-savvy, fashion-forward consumers through social media. Companies who emphasize relationship marketing with university students may increase the probability of brand loyalty among this group after graduation and entrance into the workforce. Therefore, male and female university students were considered an appropriate and important sample for an investigation of risk avoidance and brand variables.

4.2 Survey procedure

Data were collected in large lecture classes from US university students who took about 20 min to complete the questionnaire. Participants listed their favorite brand. They were asked to keep this brand in mind as they responded to statements regarding the measures of brand trust, brand credibility, brand loyalty, and brand choice overload. Participants circled a number on a 7-point scale (7 = strongly agree; 1 = strongly disagree) to indicate degree of agreement with each item.

4.3 Survey instruments

The questionnaire contained demographic items and measures of brand trust (Delgado- Ballester, Munuera- Aleman, &Yagiie-Guillent, 2006), brand credibility (Erdem&Swait, 2004), brand loyalty (Carroll &Ahuvia, 2006), brand choice overload (Shim, 1996), and risk avoidance (Raju, 1980). Items in each scale were summed to arrive at a score on each brand variable and risk avoidance.

4.4   Brand trust measurement

Delgado-Ballester et al's (2006) brand trust scale consists of eight items. Brand trust re- flects the confidence that consumers have in the reliability and intentions of a brand, especially in situations involving risk. Sample items include "This brand is a brand that meets my expectations." and "I feel confident in this brand name." Delgado-Ballester et al (2006) verified that the construct of the brand trust scale exceeded the desired level of 0.7 for scale reliability, and all items demonstrated adequate convergent validity. The brand trust scale is reliable and valid.

4.5   Brand credibility measurement

Erdem and Swait's (2004) brand credibility scale consists of six items. Brand credibility reflects the degree to which a brand's product information can be trusted and believed. This requires that a brand is perceived as trustworthy and knowledgeable by con- sumers. Sample items include "This brand delivers (or would deliver) what it promises." and "Product claims from this brand are believable". The reliability of the scale was verified by Erdem and Swait(2004).

4.6   Brand loyalty measurement

Carroll and Ahuvia's (2006) four-item brand loyalty scale was developed based on pre- vious research. The scale reflects the extent of consumers' commitment to repurchase the brand. Sample items include "This is the only brand of this product I will buy." and "When I go shopping, I don't even notice competing brands." Carroll and Ahuvia(2006) verified that the reliability of the scale was .90 (coefficient alpha).

4.7   Brand choice overload measurement

Shim's (1996) scale consists of four items that represent the extent to which consumers experience information overload, meaning that they have too many good brands and stores from which they would like to purchase. Sample items include "There are so many brands to choose from that I often feel confused." and "Sometimes it's hard to choose which stores to shop." Shim (1996) reported the reliability of the scale was acceptable.

4.8   Risk avoidance measurement

Raju's (1980) risk taking scale consists of three items that measure a preference for taking (or avoiding) risks. Sample items include "I'm cautious in trying new/different products." and "I would rather stick with a brand I usually buy than try something I'm not very sure of." The reliability of the scale was verified by Raju(1980) as exceeding 80 (coefficient alpha).

5.   EMPIRICAL ANALYSIS AND RESULTS

5.1   Descriptive analysis

Our analysis provides descriptive statistics, Cronbach's alpha reliability, and MANOVA/ ANOVA. Cronbach's alpha reliability for all measurements was acceptable ranging from 0.88 to 0.92. Participants were 221 (138 women, 81 men, 2 missing data) university stu- dents from approximately 50 different majors. Age ranged from 18 to 30 (mean age = 21.18). There were 120 Caucasians, 74 African American, 6 Asian/Asian Americans, 13 Hispanic/Latinos and 8 classified as other. The majority (n = 199) were single, 12 were married, and 10 were otherwise classified. Class level included 34 freshman, 50 sopho- mores, 50 juniors, 57 seniors, 22 graduate students, and 8 otherwise classified or miss- ing data. Participants listed 75 different favorite fashion brands such as Adidas, Aeropostale, American Eagle, Buckle, Calvin Klein, Forever 21, H&M, Levi's, Nike, Polo, and Under Armour. See Table 1 for descriptive statistics and reliability of each measure used in the questionnaire.

5.2   MANOVA/ANOVA ANALYSIS

To test the strength of the relationship between the brand variables and risk avoid-   ance, Pearson's correlation analysis was used. As a result, all brand variables were sig- nificantly correlated with risk avoidance: brand trust 0.192, $p < 0.01$; brand loyalty 0.385, $p < 0.01$; brand credibility 0.174, $p < 0.05$, and brand overchoice 0.467, $p < 0.01$.

Table 1 Descriptive statistics and reliability: risk avoidance and brand variables

Scale	Mean	SD	Range	Reliability (Cronbach Alpha)
Risk avoidance (3 items)	12.60	4.62	3–21	0.81
Brand trust (8 items)	42.71	8.48	23–56	0.89
Brand credibility (6 items)	32.93	6.14	18–42	0.87
Brand loyalty (4 items)	13.58	7.16	4–28	0.91
Brand choice overload (4 items)	15.80	6.18	4–28	0.86

As a preliminary analysis, ANOVA was conducted to determine if men and women differed in risk avoidance. ANOVA with gender as the independent variable and risk avoidance as the dependent variable was not significant, $[F(1, 213) = 1.057, p < 0.305]$. Men (M = 12.21) and women (M = 12.88) did not differ in risk avoidance. Scores on risk avoidance were split at the median of 13 to create two groups for the MANOVA/ANOVA analysis resulting in one group labeled high in risk avoidance (114 participants who scored greater than 13) and a second group labeled low in risk avoidance (107 participants who scored less than or equal to 13). MANOVA/ANOVA was conducted to test the hypotheses using risk avoidance (high, low) and gender as independent variables with brand trust, brand credibility, brand loyalty, and brand choice overload as the dependent variables. MANOVA revealed that risk avoidance $[F(4, 206) = 12.73, p < 0.000]$ was significant for the dependent variables but gender was not significant $[F(4, 206) = 0.946, p < 0.439]$ and the interaction between gender and risk avoidance was not significant $[F(4, 206) = 0.916, p < 0.456]$. ANOVA results showed that risk avoidance was significant for all four brand variables (see Table 2). Participants who scored high (vs. low) in risk avoidance scored higher on brand trust, brand credibility, brand loyalty, and brand choice overload. All hypotheses related to risk avoidance (H1-4) were supported.

6.   DISCUSSION & IMPLICATIONS

6.1   *Implication for risk avoidance and social aspects of brand relationship*

Results of this study support the hypotheses that consumers' risk avoidance affects brand trust, brand credibility, brand loyalty, and brand choice overload. When con- sumers wish to avoid risk during product purchase, they may rely on a strong consumer-brand relationship (e.g., brand trust, brand loyalty, brand credibility) because they believe the brand relationship can help them avoid risks inherent in product pur- chase (e.g., financial, social, quality). Consumers may rely on their own experiences with brands that they trust and can rely on to provide satisfaction. Well-established brand name advertising or images may reduce perceived risk if the claims have an established record of credibility. With so many brands on the market competing for consumers' attention, it is not surprising that feelings of brand choice overload are higher among consumers who are higher in risk avoidance. Brand loyalty may increase when companies provide reliable brands that consumers can depend on for functional and emotional benefits (Lin, 2010).

Fashion firms or marketers may use these results to build stronger consumer-brand relationships. Product and/or brand memories and preferences are encoded in long- term memory during childhood, adolescence and early adulthood influencing future consumption preferences (Braun-La Tour et al. 2007). Thus, it is important that com- panies who produce products targeted at Millennials (16–34 year olds) emphasize rela- tionship marketing if they hope to increase the probability of brand loyalty among this group in later adulthood.

Results of this study indicated no gender difference in the brand variables examined. Further, there was no interaction between risk avoidance and gender on the brand vari- ables. Men and women responded similarly to brand trust, brand credibility, brand loyalty, and brand choice overload. Risk avoidance seems to be a characteristic of con- sumers that overrides other characteristics such as gender. Risks are inherent in almostall purchasing decisions and consumers become aware of these risks from their own experiences or from the experiences of others within their social networks. Further, perhaps characteristics of the sample (male and female university students) may explain the lack of significant effects for gender. A sample of older adults regarding risk avoid- ance and gender on brand variables might yield different results.

Table 2 ANOVA results for brand variables by risk avoidance and gender

Scale		Mean Square	F-value	p-value
Brand trust				
Risk avoidance		596.71	8.78	0.003
High	M = 44.14 (SD = 7.98)			
Low	M = 41.17 (SD = 8.56)			
Gender		103.24	1.52	0.219
Women	M = 42.25 (SD = 8.44)			
Men	M = 43.47 (SD = 8.27)			
Brand credibility				
Risk avoidance		214.14	5.97	0.015
High	M = 33.80 (SD = 5.58)			
Low	M = 32.13 (SD = 6.48)			
Gender		133.13	3.77	0.055
Women	M = 32.43 (SD = 5.92)			
Men	M = 33.95 (SD = 6.27)			
Brand loyalty				
Risk avoidance		1042.71	22.51	0.000
High	M = 15.83 (SD = 7.12)			
Low	M = 11.34 (SD = 6.39)			
Gender		2.06	0.045	0.833
Women	M = 13.68 (SD = 6.95)			
Men	M = 13.57 (SD = 7.47)			
Brand choice overload				
Risk avoidance		1179.35	35.38	0.000
High	M = 17.99 (SD = 6.07)			
Low	M = 13.40 (SD = 5.45)			
Gender		3.76	0.11	0.737
Women	M = 15.77 (SD = 6.06)			
Men	M = 15.71 (SD = 6.47)			

6.2   Risk avoidance and open innovation in fashion industry

Our results show that for the fashion market, the higher the level of risk avoidance, the higher the level of brand trust, brand credibility, and brand loyalty. Conversely, the lower the level of risk avoidance, the lower the level of brand trust, brand credibility, and brand loyalty. Therefore, new fashion brands may want to target early adopters of fashion (i.e., fashion innovators or fashion opinion leaders) who are known to be lower in risk avoidance. When the benefits of purchasing and using a new fashion brand rise with the num- ber of consumers adopting and diffusing it, switching to an alternative brand may be unappealing because a new brand presents various uncertain risks. It is very common to face this type of path dependence from innovation (Liebowitz and Margolis, 1994). When a new fashion brand emerges, the lock-in effect on the current brand entails familiarity and safety from brand trust and credibility, which leads to inhibiting adoption of a new brand. Open innovation in the fashion industry generates both powerful network effects and high switching costs. Thus, an emergence of an open innovation in the fashion indus- try like the Threadless model may involve the lock-in effect and present a barrier to sustainable open innovation. Under this circumstance, risk avoidance prevails and a potential for open innovation of a new fashion brand can be weak.

6.3   Risk avoidance and social construction in fashion industry

Emergence of a new fashion brand is a representative case of the social construction process. The new fashion comes from the nexus of social construction within the fashion industry. Numerous fashion-related events such as fashion shows are basically social events, where fashion leaders and ordinary citizens talk about fashion and develop new fashion trends. Fashion leaders and bloggers create a new fashion brand through such so- cial construction. These characteristics of social construction in the fashion industry can facilitate brand awareness, brand power, and brand loyalty. However, the dynamic process of social construction in the fashion industry can make customers sensitive to risk. This study suggests that customers who are more risk-avoidant believe that the current brand   is more credible and trustworthy.

6.4   Brand relationship and social construction in creative network market

Brand relationship involves various potential social networks between suppliers and consumers as well as within collective consumer interactions. Brand love, brand trust, and brand credibility can contribute to promoting sustainable market innovation within an e-business context. For instance, brand trust and love can evolve from co- innovation and co-creation through customer engagement and customer networks. Sustainable customer creation comes from trustworthiness and empathy embedded into brand identity. Co-pricing decisions through e-participation in a customer service delivery system can provide various opportunities for sustainable relationships, building trust, loyalty, and reciprocal love between a supplier and customer (Della Corte et al., 2015). Next generation brands in a network economy may be called upon to create their own new brand models, platforms and applications through reciprocal brand rela- tionships between customers and providers.

Another important implication from brand relationship research comes from the critics of conventional marketing on aggressive campaigns and advertising. Consumers' motivations are multiple from self-interest, empathy, sharing experiences, to altruism (Cherrier and Murray, 2004). The economic model based on brand performance and profitability cannot generate sustainable brand relationships from engagement to reci- procity to co-creation. The sociological perspective of marketing within ubiquitous net- work and platform environments emphasizes brand trust and credibility for reciprocal relationships through sharing values and empathy (Cherrier and Murray, 2004).

7.   Further research on brand relationship and social construction

First, further study is needed in the area of consumer-brand relationships including more variety of brand variables, for example, brand charisma, brand consciousness, brand equity, and self-expressive brand. Understanding the link between brand variables, risk avoidance, and word-of-mouth (e.g., customer reviews) would provide useful information for retailers and marketers in planning strategies for targeting this group of consumers. With the growth of Internet shopping, it is important to examine how risk avoidance and brand variables influence the willingness to purchase products online. It is necessary to explore various emerging forms of producer-consumer collaboration during virtual co- creation tasks (Füllera et al. 2009; Potts et al. 2008b). It would also be meaningful to ex- plore variables related to consumer-brand relationships within and across cultural con- texts (e.g., collectivist versus individualist cultures) from various brand communities (Cova, and Pace, 2015; De Burgh Woodman and Brace Govan, 2007).

Second, further research is needed to explore how brand relationships have been formed and evolved from collective wisdom (Surowiecki, 2004) and collaborative mar- keting between providers and consumers (Cova and Pace, 2015; Potts et al., 2008). Vari- ous open innovation cases from research based social labs to global R&D centers across countries (Krishna et al., 2012; Patra and Krishna, 2015), to innovations at public space design (Pancholi et al., 2015), to innovations between university and industry (Sutthijakra and Intarakumnerd, 2015), to industrial textile clusters (Gulrajani, 2006) can be applied to those at fashion industry. Open innovations from fashion industry can provide potential opportunities for fashion companies as a strong social institution to link between fashion, technology and society (See Krishna (2014) for the implication of social institution to consolidate a legitimate network between science and society).

Third, new digital technologies and open web environments can generate various op- portunities to influence brand relationship. For example, RFID technology can stimu- late consumers' participation in brand distribution and various interactions between brand suppliers and consumers.

Competing interests

The authors declare that they have no competing interests.

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