[Original Article]

Measuring 'Consumer Smartness'
for the fashion consumption environment

Soo-kyoung Ahn[†]

Associate Professor, Dept. of Clothing & Textile, Chonnam National University, Korea

Abstract

As consumers have transformed into the influential entities in the recent consumption environment, it needs a new concept to describe their characteristics. Drawn on the notion of smart consumer experience, this study views the multiple traits of new consumers as consumer smartness. Therefore, elaborating the concept of consumer smartness, this study aims to develop its measurement and validate it by examining the relationship with external variables. Two online surveys were conducted by a professional survey company that had nationwide consumer panels. A total of 531 adult consumers who had purchased fashion goods online completed a self-administered questionnaires. A series of exploratory and confirmatory factor analysis generated 21 measuring items with six underlying constructs of consumer smartness such as innovativeness, opinion leadership, self-disclosure, marketing literacy, dissatisfaction, and technology sophistication. In order to validate the measurement, this study conducted a Pearson's correlation test and structural equation modeling analysis with consumer smartness and external constructs. The result shows that there was a significant positive relationship between consumer smartness and behavioral intentions online. In addition, consumer smartness influenced their shopping and sharing intention which supported the validity of new measurement of consumer smartness. This study provides a theoretical and empirical ground of understanding consumer smartness as new consumer characteristics in the changing environment of fashion retailing.

Keywords: consumer smartness, fashion retailing, sharing intention, shopping intention

I. Introduction

Consumers are changing as well as retail environments are transforming. The digital revolution has enabled consumers to access more information and choices, to connect with more people and organizations, and to have more influence on people and societies than ever before (Ahn, Ryou, & Jeon, 2019). For example, instead of relying on traditional advertisement, consumers are actively looking for inspiration by exploring other consumers' social media profiles and browsing price comparison websites (Deloitte, 2014). They are more likely to have purchased products using high-tech devices such as a voice-activated assistant today than a year before (RIS, 2018). After purchase, consumers are sharing their experience with others not

only by writing online reviews but also by being brand ambassadors utilizing diverse digital tools (Forbes, 2019). They are also becoming more involved in product development (Deloitte, 2014), and willingly revealing more about their personal lives expecting smart and personalized promotions from retailers (RIS, 2018). They are not just buyers or users anymore, but influential entities in the recent consumption environment. This change has led to the need for a new concept to describe new consumer characteristics.

In fact, there have been numerous studies exploring new influential consumers reflecting the changes of market environment since the marketing concept taking a 'customer first' approach arose. Opinion leaders, innovators, lead users, savvy-consumers, super consumer, market mavens, and influencers are the examples of the influential beings that academia and industry have been looking for in the market. Although researchers and practitioners were aware of the new consumers, they focused on only one or two primary traits such as emergent nature (Hoffman, Kopalle, & Novak, 2008, 2010), market mavenship (Barnes & Pressey, 2012; Goldsmith, Flynn, & Goldsmith, 2003; Ruvio & Shoham, 2007), consumer savvy (Macdonald & Uncles, 2007) and lead userness (Franke, Hippel, & Schreier, 2006; Lüthje & Herstatt, 2004; Schuhmacher & Kuester, 2012). Innovativeness (Agarwal & Rrasad, 1998; Lassar, Manolis, & Lassar, 2005; Roehrich, 2004) and opinion leadership (Eastman, Iyer, Liao-Troth, Williams, & Griffin, 2014; Flynn, Goldsmith, & Eastman, 1996; Stokburger-Sauer & Hoyer, 2009) might be the most widely debated traits in particular. These traits can describe the important part of the consumer characteristics, however, sometimes mislead to confining the consumer with a particular trait only. For example, the most important source of opinion leadership stems from expert knowledge, but objective knowledge does not predict opinion leadership obviously (Gnambs & Batinic, 2013). In addition, opinion leaders possess significantly higher levels of innovativeness than non-leaders (Lyons & Henderson,

2005) and innovative consumers are more likely to be opinion leaders and mavens than less innovative ones (Ruvio & Shoham, 2007). To sum up, only one primary trait cannot explain the whole consumer characteristics and behavior so that diverse traits which may be associated with each other should be considered simultaneously. Unlike previous studies, this study see the current consumers as multi-players with multi-traits and try to apply this change into the fashion consumption environment. Proposing the smart consumer experience (SCE), Kim, Ahn, and Forney (2014) describe the emergence of intelligent consumers who play diverse roles as principle agents of transaction and interaction in the digital consumption environment-the smart consumers. The smart consumers who are empowered, networked and engaged in digital environments create, share, and demand a smart experience that capitalizes on their social structure, relationships, and knowledge (Kim et al., 2014). Based the notion of smart consumer experience, Ryou and Ahn (2018) defined the qualities of new consumers as consumer smartness. Embracing Ryou and Ahn (2018)'s comprehensive approach integrating various traits of consumers, this study considers the multifaceted characteristics of smart consumers who play multiple roles. The purpose of this study is to elaborate the concept and develop the measure of consumer smartness. Therefore, this study develops the measurement to account for consumer smartness and validates it by examining the relationship with external variables.

Ⅱ. Literature Review

1. Smart consumers with multiple characteristics
Recent advances in technology provide for more opportunities and powers to consumers than ever before, which leads to the changes of their roles in the modern market environment. These empowered and connected consumers live on their smart devices, trust their own hands-on experience, access to multiple points of information, expect personalized and pro-

active responses from brands, and have intensive power to influence their peers (Forbes, 2015, 2018). Kim et al. (2014) already argued that the consumers in the context of smart consumer experience could be trend setters, culture creators, product/service evaluators, brand advisors, fans of brands as well as individual customers whereas their role was limited to a buyer in the earlier phases of consumer experience (*i.e.*, the total and global consumer experience). To play these different roles, smart consumers must have multiple characteristics simultaneously. For example, the smart consumers in the digital age are knowledgeable like innovators (Goldsmith et al., 2003) or lead-user (Schreier & Prügl, 2008) in a specific domain, and have practical skills and knowledge on advertising, market, and shopping like market-mavens (Feick & Price, 1987) or savvy consumers (Macdonald & Uncles, 2007; Nancarrow, Tinson, & Brace, 2011). With technological sophistication, they are socially active like opinion leaders (Shohom & Ruvio, 2008) or savvy consumers (Garnier & Macdonald, 2009; Macdonald & Uncles, 2007) and influence other people through their networks and communities like meta- mavens (Barnes & Pressey, 2012; Geissler & Edison, 2005; Walsh, Gwinner, & Swanson, 2004) or opinion leaders (Grewal, Metha, & Kardes, 2000). Furthermore, they not only adopt or purchase new things early like innovators (Roehrich, 2004) or lead-users (Urban & Hippel, 1988), but also have foresight about the future market place and proficiency in interaction with the firm for co-creation like savvy consumers (Garnier & Macdonald, 2009) or lead-users (Füller, 2010; Hienerth & Lettl, 2017; Hoffman et al., 2008, 2010; Schreier & Prügl, 2008). Thus, this study attempts to describe the consumer smartness by integrating the characteristics that have been used to identify new consumers: innovativeness, opinion leadership, self-disclosure tendency, dissatisfaction, marketing literacy, and technology sophistication.

2. Consumers with innovativeness

One of the expected personal traits that smart con-sumers might have is innovativeness. Today's consumers are attracted not only by new products or brands, but also by new ways to shop and share. When they find something interesting, they go to check diverse information sources before making a decision and shop across boarders without any interruption such as ads or friends' recommendations (Rosenbaum, 2015). They are willing to be crowd-funding contributors to foster startups or rising designers through social networks and unhesitatingly choose new payment methods using NFC (near field communication) or MST(magnetic secure transmission). As smart speaker ownership is rising quickly, people increasingly search and shop via the voice assistant such as Alexa and Siri (Mayer & Harrison, 2019; Schwartz, 2019) showing the emergence of Voice-commerce (RIS, 2018). Furthermore, they are likely to be V-loggers via YouTube as well as information or experience sharers in Instagram or Pinterest. Adaptability to these rapid changes in retailing environment must be based on consumer innovativeness. Innovativeness is generally defined as 'the degree to which an individual or other unit of adoption is relatively earlier in adopting new ideas than other members of a system (Rogers, 1983, p. 241)' so that it has been used to determine adopter categories of the members of a social system. It also reflects an innate tendency to seek out new information, stimuli, or experiences (Hirschman, 1980), because searching should accompany adopting. In spite of numerous studies on innovativeness, the recent changes into digital shopping environment require further systematic approach to consumer innovativeness. Having reviewed various scales in the literature, Roehrich (2004) categorizes two key contents of innovativeness: attraction toward newness and speed of adoption. And Bartels and Reinders (2011) suggests three forms of innovativeness: innate innovativeness, domain-specific innovativeness and innovative behavior as actualized innovativeness, which differentiates from the traditional three levels (*i.e.*, general level, product level, and do-

main specific level). This study holds instruments from diverse research (Agarwal & Prasad, 1998; Goldsmith et al., 2003; Goldsmith & Hofacker, 1991) to measures attraction toward newness and early adoption behavior in the field of shopping fashion products and brands.

Furthermore, innovativeness is closely related to other traits of smart consumer such as market maven-ship and opinion leadership (Eastman et al., 2014; Goldsmith et al., 2003; Grewal et al., 2000; Ruvio & Shoham, 2007). Therefore, innovativeness can be a key concept describing personal traits of smart consumers.

3. Consumers with opinion leadership

In general, opinion leadership is a person's ten-dency to influence the attitudes or behaviors of others in a specific domain through interpersonal communi-cation (Flynn et al., 1996; Grewal et al., 2000; King & Summers, 1970). Opinion leaders are considered to have dual roles as information sources and influen-tials (Weimann, Tustin, Vuuren, & Joubert, 2007). Because they have more experience, expert know-ledge, information sources, and higher level of inter-est or involvement in a specific product category (Gnambs & Batinic, 2013; Flynn, Goldsmith, & Eastman, 1994; King & Summers, 1970; Lyons & Henderson, 2005; Weimann et al., 2007) than non-leaders, and are very likely to communicate with others by virtue of their involvement in the product category (Flynn et al., 1996). Meanwhile, Grewal et al. (2000) called these roles as the gate-keeping role since opinion leaders pass the information to the others in the social system and influence others' attitudes or behavior in a desired way inferring they control the flow of information.

Traditional communication mainly occurred in small groups of friends, family, colleagues and neigh-bors, while the scope of current one has been ex-panded into huge social systems via internet. With this change, the types of opinion leaders have been diversifying. For example, key opinion leaders (KOL)

are experts who are trusted and respected for their qualification, knowledge, and experience in a specific domain, such as industry experts, professional ad-visers, or academics (Cision, 2018; Enrhardt, 2018). They interpret rather than copy media content, and actively share it with the public (Cision, 2018). On the other hand, influencers are people who have a strong influence on audiences based on their online persona, contents, and perceived authenticity (Ehrhardt, 2018) such as celebrities, bloggers, or micro influ-encers (Cision, 2018). In spite of these changes, opin-ion leaders are still important information sources, in-fluentials and gate-keepers of information. In the digi-tal world, they are technically competent and socially active, consume mass media heavily (Shoham & Ruvio, 2008), seek out and learn about the market-place, share their attitudes and knowledge with others (Eastman et al., 2014; Goldsmith & Clark, 2008), and influence someone's choices (Song, Cho, & Kim, 2017). According to the national research by Korea Internet & Security Agency (KISA, 2019), 93.7% of respond-ents used Internet for acquiring information. The mo-tives of using Social Network Sites were searching (57.6% of users) and sharing information, knowledge (32.0%), and personal interest (43.4%). It implies that a number of contemporary consumers may have a trait of opinion leadership already, although they may vary in quality. In addition, since opinion leadership is associated with innovativeness and market maven-ship, and leads related behavior such as purchase, sharing, satisfaction, or loyalty (Goldsmith & Clark, 2008; Ruvio & Shoham, 2007; Shoham & Ruvio, 2008; Stokburger-Sauer & Hoyer, 2009). Thus, opin-ion leadership may be one of the traits of smart consumers.

4. Consumers with self-disclosure tendency

There are 3.2 billion social media users worldwide which equates to about 42% of the population (Oberlo, 2019). The reasons for internet users world-wide to use social media are to share photos or videos

(33%), opinion (29%), details of 'what I'm doing in my daily life (20%)' (Statista, 2019). Likewise, the usage rate of social media was up to 65.2% of internet users in Korea (KISA, 2019). They use social networking for sharing personal interests like hobbies or leisure (43.3%) and information, knowledge, or incident (32%), and recoding personal daily life (39.9%). These statistics indicate that a number of current consumers are likely to disclose themselves to others online.

Self-disclosure is the telling of the previously unknown (Joinson & Paine, 2012), and occurs when a person tells another person something about him or herself (Rosenfeld, 1979). As the consumer environment changes, self-disclosure receives attention in online communication relating to product reviews (Forman, Ghose, & Wiensenfeld, 2008; Ghose & Ipeirotis, 2011; Huang, 2014; Shin, Van Der Heide, Beyea, Dai, & Prchal, 2017), WOM (Sicilia, Delgado-Ballester, & Palazon, 2016), and SNS or blog behaviors (Cho, 2015; Jin & Noh, 2015; Lee, Im, & Taylor, 2008; Park, Jin, & Jin, 2011). Lee et al. (2008) argued that many consumers are voluntarily disclosing a various aspects of their personal lives in an online context such as blogs and personal Web space without explicit reciprocity, despite of the privacy concerns. However, many personal Web space may be often connected with others so that it can be a means of communication and relationship management with others in the forms of WOM, product review, and other online behaviors. The effect of self-disclosure online is controversial. For example, the individual's level of self-disclosure did not increase their engagement in positive WOM about the brand, but had an impact on WOM when supported by other moderator (Sicilia et al., 2016). Self-disclosure did not moderate the effect of hotel review quality on product attitudes (Shin et al., 2017), while the reviews on Amazon.com that disclose identity-descriptive information about the reviewer were rated as more helpful than anonymous reviews (Forman et al., 2008). In spite of the

mixed results, self-disclosure is still a key factor in developing relationship in online as it is in face-to-face (Kim & Dindia, 2011) and related to social interactions and relationship development (Sicilia et al., 2016). Specifically, a consumer's attitudes and purchase decision is based on the information obtaining from fellow consumers (Forman et al., 2008), because consumers perceive the information is more reliable, credible and trustworthy than firm generated (Sicilia et al., 2016). Therefore, computer mediated communication (CMC) and general Internet based behavior can be characterized as containing high levels of disclosure (Joinson & Paine, 2012). Thus, self-disclosure will be one of key features of smart consumers who are both message recipients and senders and be associated with online behaviors such as shopping experience and information sharing.

5. Consumers with dissatisfaction

Smart consumers play diverse roles as principle agents of transaction, culture creators, merchandise curators, product and service evaluators, and brand advisors (Kim et al., 2014). In order to play multiple roles in digital shopping environment, consumers must have not only sufficient knowledge but also unfulfilled needs derived from failure experience with the current products and services. Lead-user theory describes the people who have their understanding of future needs and provide solutions or keys to potential solutions for the companies as lead users (Eisenberg, 2011). They modify products or use them in unforeseen ways to meet their needs far ahead of the industry, because they are dissatisfied with existing products and feel need for a better solution (Eisenberg, 2011; Franke et al., 2006; Schuhmacher & Kuester, 2012; Urban & Hippel, 1988). Based on consumer knowledge, use experience, locus of control and innovativeness, lead users have a conscious awareness of their domain-specific needs and a high expected benefit from innovative solutions (Hoffman et al., 2010; Schreier & Prügl, 2008; Von Hippel, 1986) so

that companies try to learn from lead users (Schreier & Prügl, 2008). Dissatisfaction is a key driver for lead users (Franke et al., 2006; Schuhmacher & Kuester, 2012) and motivate consumer to virtually engage in virtual co-creation too (Füller, 2010). Empirical studies show that many users-from 10 percent to nearly 40 percent-engaged in developing or modifying products (Von Hippel, 2005), many companies such as Lego, Made.com and Threadless.com have already brought a board of customers as advisors, idea generators, and designers. Dissatisfaction with existing products or services during shopping may drive consumers to invent new shopping solutions and new ways to use products or services, therefore, it can be a key factor to designate smart consumers in digital shopping environment. For lead users not only create new product ideas but also have trend leadership such as adopting new commercial products more heavily and faster than ordinary users (Hienerth & Lettl, 2017; Schreier & Prügl, 2008; Urban & Hippel, 1988), dissatisfaction may be associated with buying or sharing intention too.

6. Consumers with marketing literacy

Marketing literacy means that consumers are aware of the ideas, objectives and methods of marketing and advertising (Macdonald & Uncles, 2007) and capable of conducting sophisticated analysis, dissection and critique of marketing activity (Garnier & Macdonald, 2009). This term is generally used to explain savvy consumers. Savvy consumers are confident consumers who understands how to make smart purchases empowered by the competency across the array of practical skills and knowledge to respond to a changing environment (Macdonald & Uncles, 2007). Defining the notion of new consumers, Macdonald and Uncles (2007) identified six characteristics of consumer savvy including technology sophistication, interpersonal and online networking, marketing/advertising literacy, their self-efficacy, and expectations of firms. Marketing literacy can be found in market mavens who are

called as competent information providers and advisors (Walsh et al., 2004). Due to their marketplace knowledge and expertise, they can help other consumers in advertising saturated markets (Walsh et al., 2004).

For the present consumers easily access to abundant information from diverse sources and experience products and services more than traditional consumers, they can be familiar with marketing terminology and identify the persuasive technique of advertising just like savvy consumers who see through and decode advertising ploy (Garnier & Macdonald, 2009; Nancarrow et al., 2011) and market mavens.

7. Consumers with technology sophistication

Being a core component of consumer savvy, technology sophistication refers to the high rates of adoption of new technologies and also the ability of consumers to handle multiple technologies through media multi-tasking (Macdonald & Uncles, 2007). The rapid dissemination of internet and high-tech devices enables consumers have more control over the access and use of information than ever before (Shankar, Inman, Mantrala, Kelley, & Rizley, 2011). For example, Millennials representing the current consumers are described as the first digital natives being enthusiastic about technological advances (Eastman et al., 2014). Their affinity for technology is reshaping the retail space (Goldman Sachs, 2019). Just like savvy consumers, they use technology not only for communicating online but improving the effectiveness of their consumption. As Kim et al. (2014) described, smart consumers utilize smart device or software that tailored to their specific consumer profile. In short, they live online and buy online (Goldman Sachs, 2019). Therefore, technology sophistication may be a noteworthy feature of smart consumers. Additionally, it may be related to consumers' behavioral intension because it enhances consumers' interaction with the firm and the marketplace (Macdonald & Uncles, 2007).

Ⅲ. Research Methods

The study involved two phases of measurement development and validation employing two surveys. In the first phase of measurement development, a series of exploratory factor analyses and confirmatory factor analyses (CFA) using SPSS 23.0 and AMOS 23.0 were executed to identify the underlying dimensions of consumer smartness. In the second phase of validation, correlation analysis and a structural equation modeling (SEM) examined the relationships of consumer smartness and external constructs such as shopping and sharing intentions. Descriptive statistics were used to describe general demographic characteristics and online behaviors of the respondents.

1. Data collection

This study employed two surveys collecting data of 531 adult consumers who had purchased fashion goods online. The surveys were conducted by a professional online survey company that hold a nationwide panel of over one million consumers in Korea. According to the national research (KISA, 2019), fashion products such as apparel, shoes, and accessories were the most popular online shopping category (87.7%). It is consistent with the worldwide statistics that 57 percent of global internet users had purchased fashion-related products through the internet (Statista, 2018). Purchasing a lot of fashion goods may mean they are more likely to talk about or do something about it, such as interaction that smart consumers mainly involve in. Thus, fashion consumers can be suitable subjects for this study.

2. Measures

In the initial survey, a total of 222 consumers with an average age of 33.6 completed a self-administered questionnaire including questions about opinion leadership with 11 items (Flynn et al., 1996), innovativeness with 10 items (Agarwal & Prasad, 1998; Goldsmith et al., 2003; Goldsmith & Hofacker, 1991),

consumer savvy and tech savvy with 23 items (Agarwal & Prasad, 1998; Macdonald & Uncles, 2007), market mavenship with 8 items (Goldsmith et al., 2003), self-disclosure with 6 items (Joinson, 2001; Shih, Hsu, Yen, & Lin, 2012; Yu, Kim, & Suh, 2005), lead user with 15 items (Franke et al., 2006; Hoffman et al., 2008; Schuhmacher & Kuester, 2012) and several demographic information. Data were analyzed by employing a series of principal component analyses with Varimax rotation to reduce dimensionality. Removing items with a low loading or communality, or cross-loaded items from the initial set of 73 items, analyses initially extracted eight constructs of consumer smartness with 36 items showing 75.552 of total explained variance.

The second survey (n=309) was executed with self-administered questionnaire with 36 items based on the result of the previous analyses using a six-point Likert scale ranging from strongly disagree. The questionnaire contained the additional questions about the respondents' behavioral intention with seven items, online behavior, and demographic information. Specifically, behavioral intention included shopping and sharing intention for validation. To scrutinize the nomological validity of the measurement, this study tested the simple correlations between consumer smartness and external constructs that proved theoretically correlate, and examined a structure model containing these external constructs. According to the literature, consumer characteristics such as innovativeness, opinion leadership, lead-userness, and market mavenship influence individual consumer behavior such as purchase (Blake, Neuendorf, & Valdiserri, 2003; Eastman et al., 2014; Goldsmith & Desborde, 1991), or usage (Lassar et al., 2005), product evaluations, channel choice (Cho & Workman, 2011), adoption (Geissler & Edision, 2005; Schreier & Prügl, 2008), store/site visit (Blake et al., 2003; Shoham & Ruvio, 2008) and attitude (Park, Burns, & Rabolt, 2007; Stokburger-Sauer & Hoyer, 2009). They are also related to communication behavior such as sharing attitudes and knowledge

(Goldsmith, Clark, & Goldsmith, 2008; Ruvio & Shoham, 2007), and searching information from others (Clark, Goldsmith, & Goldsmith, 2008; Ruvio & Shoham, 2007; Wiedmann, Walsh, & Mitchell, 2001). Communication is the most important reason to use internet (KISA, 2019). This consumer-to consumer communication is also associated with self-disclosure (Forman et al., 2008; Ghose & Ipeirotis, 2011; Huang, 2014; Lee et al., 2008; Shih et al., 2012; Yu et al., 2005). In conclusion, smart consumers are principle agents of transaction and interaction (Kim et al., 2014) so that shopping and sharing are their main activities. Thus, shopping and sharing intentions were used as external variables for validation.

3. Demographic and behavioral characteristics of the respondents

The average age of the respondents in the second survey was 34.5 years with a standard deviation of 8.0 years. The majority of respondents were male (n= 156, 50.5%), employed (n=228, 73.8%) and university graduates (n=196, 63.4%). They were urban residents of Seoul, Busan, Taegu, Incheon, Daejeon, Gwangju and Ulsan (n=192, 62.1%). Their monthly income level most ranged from $2,000 to $4,000 ($n$=115, 37.2%). Most of them spent between $100 and $250 on clothes monthly ($n$=144, 46.6%) and shopped for apparel goods via internet or mobile phones (n=229, 74.1%). *Naver Shopping* (n=75, 24.3%) and *11st* (n=58, 18.1%) were the most frequently visited e-tailers or shopping platforms. The most popular SNSs were *Facebook* (n=256, 82.8%), *Kakao story* (n=209, 67.6%), and *Instagram* (n=202, 65.4%) respectively. With the exception of apparel goods, food (n=255, 82.5%) and books (n=159, 51.5%) were the most often purchased items online.

They searched information on apparel products including price information (n=354, 89.6%), read relevant comments on the reviews pages (n=316, 80.0%), wrote product reviews (n=200, 50.6%), and made an inquiry about product details. They were mainly en-

gaged in writing e-mails (n=245, 79.3%), news searching (n=286, 92.6%), subscribing Web toons (n=198, 64.1%), and blogging (n=256, 82.8%) online. With regard to shopping, most of the respondents searched product information including price (n=300, 97.1%) by reading the product reviews at the shopping sites (n=296, 95.8%), visiting blogs or SNS (n=254, 82.2%), review sites (n=200, 64.7%), and brand sites (n=195, 63.1%). After purchase, 219 respondents (70.9%) wrote reviews and 125 respondents (40.5%) posted reviews with photos. They shared the user experiences through blogs, SNS (n=84, 27.2%), or messengers (n=149, 48.2%). They contacted retailers or brands to make suggestions about the products through online (n=71, 23.3%), took part in product idea challenges (n=43, 13.9%), and attempted group buying (n=55, 17.8%). They were shopping and sharing online with an average of 4.43 times a week, spending about one-hour and 35 minutes each time.

Ⅳ. Results and Discussion

1. Identifying consumer smartness

In order to identify underlying dimensions of consumer smartness, principle component analyses with Varimax rotation were performed with the data of 309 from the second survey. Removing items with low factor loading or cross-loadings from the initial 36 items, they finally revealed the six underlying dimensions of consumer smartness with final 21 items that explained 77.495% of total variance. Six dimensions include innovativeness (38.495% of variance, α=.908) which means the tendency of actively searching or adopting a new product or brand as soon as it becomes available and opinion leadership (10.345% of variance, α=.889) which represents the influence on other consumers' shopping behavior. Self-disclosure (9.080% of variance, α=.871) which refers to the tendency of providing personal information to others, and dissatisfaction (7.658% of variance, α= .876) in which consumers are dissatisfied with the ex-

isting products or shopping systems and expect potential benefits were included too. Technology sophistication (7.149% of variance, α=.845) denotes proficiency in using shopping-related technologies such as devices and apps, and marketing literacy is the familiarity with techniques of marketing and advertising (4.768% of variance, α=.869).

Subsequently, CFA confirmed 21 indicators to measure six latent constructs (Table 1). The χ^2 of 280.784 (df=174, p=.000; χ^2/df=1.614), NFI of .935, CFI of .974, and RMSEA of .045 supported a good model fit. All items loaded significantly (t-value>1.96) on their corresponding constructs so that construct validity was supported. Composite reliabilities ranged from .694 to .909 and AVEs ranged from .632 to .716 supported convergent validity. Discriminant validity was attained by the result that the square root of AVEs were larger than the squared correlation between each pair of constructs (Table 2).

The result supports the assumption that smart consumers must have multiple traits in order to play diverse roles such as culture creators, product evaluators, brand advisors, brand advocators and buyers (Kim et al., 2014). In detail, six traits explain their adaptability to the rapid changes in retailing environment, tendency to interpret and share media content with the public actively, and driver to invent new solutions related to shopping. They also describe smart consumers' propensity to release their personal lives and opinions voluntarily in online context and abilities to penetrate the marketing intention and to use smart device or software that tailored to their needs. In the process of combining various traits and extracting essential component of consumer smartness, similar contents of two different traits converged on one trait. For example, market maven scales were merged under opinion leadership and innovativeness, even though the previous studies argued that they were separate and distinct (Goldsmith et al., 2003; Ruvio & Shoham, 2007; Stokburger-Sauer & Hoyer, 2009). This may be because the relatively more trait varia-

bles were tested together and they were organically related each other in a broad sense. It implies that the concept of consumer smartness involves the various activities by multiple roles while the previous studies focus on the interaction between consumers.

2. Validating measurement

For the validation of the measurement, this study firstly tested the simple correlations between consumer smartness and behavioral intentions and secondly examined the relationships of consumer smartness and external constructs.

The result of correlation analysis indicated that consumer smartness was significantly correlated with information sharing intention (Pearson's r=.607, p<.01) and buying intention (Pearson's r=.231, p<.01). For further validation, the measure a structural model containing six constructs of consumer smartness and two behavioral intention constructs was tested. The result of measurement model testing by employing CFA presented an acceptable fit of measures of constructs ($\chi^2_{(319)}$=600.475, p=.000; χ^2/df=1.882; NFI of .899; CFI of .949, and RMSEA of .054). Construct validity (t-value>1.96), composite reliabilities (.692 to .891) and AVEs (.636 to .715) for all the measures supported convergent validity. Comparing the squared root of AVEs and the squared correlation of each pair of constructs confirmed discriminant validity. Next, a SEM was conducted to test if consumer smartness affected shopping and sharing intention. The model fit with the χ^2 of 621.837 (df=322, p=.000; χ^2/df=1.931), NFI of .897, CFI of .947, and RMSEA of .055 was acceptable. The result presented that eight paths out of twelve ones were significant. Technology sophistication (β=.313[***]), and self-disclosure (β=.153[*]), had positive impact on shopping intention, while all dimensions of consumer smartness affected sharing intention. In detail, opinion leadership (β=.283[***]), marketing literacy (β=.274[**]), self-disclosure, (β=.204[**]), dissatisfaction (β=.248[***]), and technology sophistication (β=.167[***]), positively influenced sharing intention,

<Table 1> CFA result of consumer smartness   (*n*=309)

Constructs	Measurement items	SFL[a]	SE	*t*-value	Construct reliability[b]	AVE[c]
Opinion leadership	Other people come to me for advice about shopping fashion goods.	.834	–	–	.890	.670
	People that I know pick their purchases based on my suggestion about fashion goods.	.851	.054	17.498		
	I often influence people's opinions about shopping fashion goods.	.831	.053	16.942		
	Other people often change mind by my saying when they are shopping fashion goods.	.755	.053	14.844		
Innovativeness	If I heard about a new fashion goods or brand, I would look for ways to shop it.	.827	–	–	.909	.715
	I like to experiment with a new fashion goods or brand.	.847	.058	17.744		
	In general, I am among the first in my circle of friends to accept a new fashion item or brand when it appears.	.902	.058	19.406		
	In general, I am not hesitant to try out a new fashion item or brand.	.802	.063	16.400		
Marketing literacy	When viewing advertising, I can identify the techniques being used to persuade me to buy.	.804	–	–	.694	.646
	I am familiar with marketing jargon.	.810	.071	14.594		
	I am really good at cutting through to the truth behind the over-claiming in advertisements.	.797	.067	14.367		
Self-disclosure	I often disclose my attitude or opinion online.	.728	–	–	.873	.632
	I actively reveal my hobby online.	.776	.093	12.916		
	I usually talk about my job or schoolwork.	.833	.085	13.798		
	I feel comfortable to provide information about my personality online.	.838	.091	13.868		
Dissatisfaction	I am dissatisfied with the existing online system or service for apparel shopping.	.798	–	–	.741	.706
	I have already had problems with my shopping that could not be solved with the brands or retailers' conventional offerings.	.908	.067	16.704		
	In my opinion, there are still unresolved problems with shopping fashion goods.	.811	0.68	15.367		
Technology sophistication	Using high-tech shopping devices or apps would make it easier to do my shopping.	.657	–	–	.881	.716
	Learning to use high-tech shopping devices or apps would be easy for me.	.917	.103	13.461		
	Overall, I believe that high-tech shopping devices or apps would be easy to use.	.935	.105	13.468		

[a]Standardized factor loading, the first item for each construct was set to 1.
[b]Construct reliability=[Σ(std. loading)2] / [Σ(std. loading)2] + $\Sigma\xi$i].
[c]Average extracted variance.

<Table 2> Correlation and φ^2 of constructs

Construct	1	2	3	4	5	6
1. Innovativeness	.71	.34	.22	.39	.14	.09
2. Opinion leadership	.59	.67	.24	.27	.27	.08
3. Self-expression	.47	.49	.63	.24	.10	.15
4. Marketing literacy	.63	.52	.49	.65	.31	.16
5. Dissatisfaction	.38	.44	.31	.56	.71	.05
6. Technology sophistication	.30	.29	.38	.40	.22	.72

The diagonal numbers represent the AVE where the lower diagonal area represents the correlation between each constructs, and the upper area represents φ^2.

whereas innovativeness ($\beta=-.236^{**}$), negatively influenced sharing intention (Table 3). Therefore, consumer smartness influenced behavioral intentions including shopping and sharing intention so that the validity of the newly developed consumer smartness measures with 21 items was confirmed.

V. Conclusions

A tremendous amount of technological advance-

ment and economic opportunity have disrupted the way of living, communicating, and even shopping, and have empowered consumers to be smart. Today's consumers are an entirely different breed compared to the consumers of yesteryear (Mallee Blue, 2018). They demand personalized service, expect consistent business interaction through Omni-channel, do almost everything with mobile devices, experience through virtual visualization before making a purchase and actively interact with brands and other consumers through social media.

Inspired by the model of the paradigm shift of consumer experience (Kim et al., 2014), this study assume that smart consumers may have multiple traits in order to play the extended roles in digital consumption environment. Thus, this study attempted to integrate the distinctive traits of the consumers who received the attention from academia and industry and to define the consumer smartness. Based on the initial pool of measurements drawn on innovativeness, consumer savvy and tech savvy, market mavenship, self-disclosure and lead user literature, this study developed final measurement for consumer smartness.

<Table 3> The result of the structural model testing

Paths		Estimate	C.R.
Shopping intention ←	Opinion leadership	−.124	−1.502
	Innovativeness	−.033	−.376
	Marketing literacy	.018	.179
	Self-disclosure	.153*	.048
	Dissatisfaction	.002	.030
	Technology sophistication	.313***	4.527
Sharing intention ←	Opinion leadership	.283***	4.156
	Innovativeness	−.236**	−3.268
	Marketing literacy	.274**	3.268
	Self-disclosure	.204**	3.211
	Dissatisfaction	.248***	3.938
	Technology sophistication	.167**	3.060

* $p<.05$, ** $p<.01$, *** $p<.001$

First, this study empirically extracted six dimensions with 21 measuring items of consumer smartness as innovativeness, opinion leadership, self-disclosure, dissatisfaction, technology sophistication, and marketing literacy. The result supports that consumer smartness is a comprehensive concept to explain smart consumers' multiple roles in present retailing environment. Therefore, this study suggests that marketers and researchers not to look at the recent smart consumers fragmentally but look at them as a whole, because their behaviors and roles are organically related each other. Although the previous studies argued that opinion leaders, market mavens, savvy consumers, lead-users were different concepts, the results of exploratory factor analysis exhibited a lot of cross-loaded items in the integrated measures. It implies that these consumers might share similar characteristics. Therefore, this study suggests the revisit these concepts with today's consumers considering their extended roles. Also, fashion firms need to pay attention to consumer smartness that is a wide-ranging trait explaining multiple behaviors in digital retailing context and devise a new approach to smart consumers. For example, marketers should consider consumer smartness as a segmentation criterion rather than a narrow-ranging trait bringing a specific behavior.

Second, this study validated the measurement of smart consumers by examining the relationships with internal and external variables. The result showed not only the measurement validity, but also interesting implications. Consumer smartness influenced behavioral intentions including shopping and sharing intention as expected. In particular, only two traits, self-disclosure and technology sophistication positively affected on shopping intention while other traits did not. Moreover, all traits significantly affected on sharing intention. It implies that sharing activities may be key activities rather than purchasing in today's digital consumption environment. It may be because consumers spend more time and effort on information sharing than on just purchasing. They may enjoying the process of consuming not only purchase itself. It supports that the modern consumers consume mass media heavily (Shoham & Ruvio, 2008) and share their attitudes and knowledge with others (Eastman et al., 2014; Goldsmith & Clark, 2008).

Third, interestingly, self-disclosure and technology sophistications have significant impacts on both shopping and sharing intension. It proves that these may be the most essential qualities of modern consumers. That's why online communication literature (Forman et al., 2008; Huang, 2014; Park et al., 2011; Shin et al., 2017; Sicilia et al., 2016) relating to product reviews, WOM, and SNS or blog behaviors paid attention to self-disclosure and market maven and savvy consumer literature (Garnier & Macdonald, 2009; Geissler & Edison, 2005; Macdonald & Uncles, 2007) considered technology sophistication as a key attribute. Therefore, this study suggest marketers provide an interactive setting to their website so that customers can exhibit themselves and communicate with others in order to increase traffics and amplify their engagement. For example, personalized spaces to offer dynamic communication between consumers on the brand's website and events to encourage active participation.

The previous studies exploring the new influential consumers have been focusing on a particular trait only according to a consumer's specific role in the marketplace. However, the current consumers play diverse roles at the same time, which implies they have multifaceted characteristics. Developing the measures of consumer smartness, this study emphasized the emergence of smart consumers and their multiple roles in the contemporary consumption environment. The result of this study provides practical suggestion for segmentation and targeting new consumers and hands-on communication strategies to attract and maintain them within a brand's sphere. It also provides a theoretical foundation of understanding smart consumer characteristics and academic implication for consumers' sharing activities and self-exposure online.

However, there are several limitations to be

addressed. Although this study found the meaningful traits such as self-disclosure and technology sophistication, there were negative and insignificant paths when examining the relationships between six dimensions and external variables including shopping and sharing intentions. Future studies can be expected to test the relationship with other online activities and consider the possibility of second-order structure of consumer smartness.

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