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# Modeling consumers' intention to use fashion and beauty subscription-based online services (SOS)

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## Abstract

This study examined one of the new consumption styles of modern consumers, subscription-based online services (SOS), which is often called as box retailing. The purpose of this study was to empirically test six antecedents—utilitarian motivations, hedonic motivations, fashion consciousness, consumer innovativeness, desire for unique products, and online transaction self-efficacy—as predictors of consumers' attitude toward and intention to use fashion/beauty SOS. The theory of reasoned action was used as a theoretical foundation. With responses from 385 American consumers on an online survey, the theoretical model was tested in the fashion/beauty SOS context using structural equation modeling on LISREL. Results indicated that utilitarian and hedonic motivations, fashion consciousness, and online transaction self-efficacy indirectly influence intention to use fashion/beauty SOS, mediated by attitude towards fashion/beauty SOS. Instead of being mediated by attitude towards fashion/beauty SOS, consumer innovativeness and desire for unique products directly influence intention to use fashion/beauty SOS. Subjective norm positively influences intention to use fashion/beauty SOS. By identifying the factors that can predict consumers' attitude towards and intention to use this new type of fashion/beauty consumption, this study addresses an evolving trend in home-based shopping behavior. Theoretically, as one of the earliest studies in this phenomenon, this study lays the theoretical groundwork paving way for further exploration in this area. Managers of fashion and beauty SOSs also can utilize these findings to more accurately target the appropriate consumer segment and streamline their marketing messages in accordance.

**Keywords:** Online subscription, Fashion consciousness, Utilitarian, Hedonic, Attitude, Intention

## Introduction

A subscription-based online service (SOS) refers to an e-business that provides periodic delivery of a customized box of merchandise directly to the consumer's home for a weekly, monthly or annual fee. By curating products to suit individual customers' needs and likes, SOSs offer consumers a new way of acquiring the latest products from the comforts of their home. Today, SOSs in the US successfully sell a variety of products including art (e.g., Art in a Box), entertainment (e.g., Netflix, Spotify), food/meals (e.g., Carnivore Club, Blue Apron), and pet treats and toys (e.g., BestFriendBox) (Burlingham

2014; Roussin 2016). The recent explosive growth of the SOS business model, also called the “box model,” has given birth to a “subscription economy” (Whitler 2016). The box model is a retail business strategy where a customer can subscribe to an SOS of their choice for a weekly/monthly/annual fee and receive a box of customized and curated merchandise of their liking at their doorstep. The unique feature of the box model is that these SOSs alleviate the pressure on consumers to choose from thousands of brands and products by making those choices for them. The increase in popularity of the box model has also attracted traditional retailers, such as Walmart (e.g., Baby Box) and Sephora (e.g., Play by Sephora) into this promising new retail service model. The fashion and beauty industries are no strangers to this so-called subscription economy, with SOSs such as Birchbox, Dollar Shave Club, Le Tote, Me Undies, Rocksbox and Stitch Fix serving over a million subscribers.

While the box model has been extremely lucrative for such fashion and beauty SOSs where customer traffic to these websites has increased from 0.7 million to 21.4 million (3000% increase) in 3 years (2013–2016) (eMarketer 2016), some fashion and beauty SOSs such as CakeStyle, BeachMint and Wardrobe Wake Up have failed to succeed due to their inability to compete in the subscription economy. Pike (2016) argues that, such failure cases point out the uniquely challenging nature of the box model, especially for fashion and beauty products, citing the difficulty to identify the right target consumers, and understand their tastes and behavior. Such unique challenges faced by the fashion and beauty SOS industries, therefore, call for an exploration of the factors that can predict consumers’ attitude toward and intention to use fashion/beauty SOS. Though the SOS industry has grown rapidly generating \$5 billion in revenue in 2014 alone (Pike 2016), virtually no research exists to explore the factors influencing consumers’ decision to use SOS in general. Moreover, the rise of such innovative and timesaving methods of shopping may indicate an evolution in fashion and beauty consumption behavior, thereby warranting an early attempt to empirically understand this emerging phenomenon.

To this end, this study aims at identifying and testing the factors that can predict consumers’ attitude towards and intention to use fashion/beauty SOS. In order to achieve this, the well-established behavioral science theory, theory of reasoned action (TRA) (Ajzen and Fishbein 1980), is used as a prediction tool in understanding consumers’ purchase intention of fashion/beauty SOS. By modeling the predicting factors in the TRA framework, the findings could provide interesting insights into specific consumer characteristics that have the most proclivity to form favorable attitudes toward and intention to use fashion/beauty SOS. In addition to contributing to theoretical understanding of the SOS phenomenon, such findings can help fashion/beauty SOS managers identify and segment their consumer groups, and deliver tailored marketing messages in accordance.

In the following sections, first, the SOS phenomenon is explored in detail followed by a review of the TRA. Further, the possible factors (antecedents) in forming favorable attitude towards fashion/beauty SOS are identified and defined. Based on this, a research framework and relevant hypotheses are developed before discussing the methods employed to test the framework. Finally, the results of the study are presented followed by a discussion of findings, implications and limitations.

**Table 1 Subscription-based online services (SOSs) in various product categories**

Name of SOS	Product/service	Industry
Art in a box	Fine art in ceramic, printmaking, painting, collage, digital prints etc. by Bay Area artists	Art
Artsicle	Original art from artists from around the world	
Birchbox	Makeup and other beauty related product samples	Beauty
Glossybox	Cosmetic and wellness samples	
Good being	Organic beauty products	
Play by Sephora	Makeup and other beauty related product samples	
Atlas coffee club	Coffee from around the world	Food and beverages
Blue apron	Ingredients and recipes for meals	
Full circle	Organic fruits and vegetables	
Love with food	Organic, all-natural or gluten-free snacks	
Fabletics	Workout clothing	Fashion
Le Tote	Clothing and accessories	
Me Undies	Underwear	
Monthly socks	Socks	
Shoedazzle	Women's shoes	
Stitch Fix	Clothing and accessories	
Swag of the month	Men's t-shirts	
Wantable	Accessories, makeup, intimates and fitness	
BarkBox	Dog goodies	Pets
Baxter Boo	Dog fashion and accessories	
Best	Pet treats and toys	

## Literature review

### Subscription-based online service (SOS)

Subscription-based online service (SOS), a retail service model that originally began with magazine subscriptions (Juhas 2017), has today found scope in almost every product and service category from rental cars to flowers, and fashion and beauty products are no exceptions to this model. Table 1 lists some of the top SOSs in different product categories including fashion and beauty in the US.

The subscription economy is currently growing at a rate of 109.1% (as of 2016) in comparison to a mere 29% in 2013 (McCann 2016). Juhas (2017) observes that the main reason for the success of the SOS model is the high lifetime value extracted from each customer in comparison to traditional retail models where the modern consumer constantly switches retailers. SOSs, especially in the fashion and beauty industry, have adopted the box model. In this model, in the case of a top beauty SOS, Birchbox, for instance, customers receive a box of four to five selected samples of makeup or other beauty products once a month for a fixed monthly subscription fee. The fashion SOS, Stitch Fix, works similarly, where upon providing personal information such as body size, shape, tastes, lifestyle, and other preferences on the company's website, customers periodically receive a customized box of five fashion (clothing and accessories) items, curated by a stylist based on the customer's preferences. The customer chooses any of the five items they wish to keep and sends the rest back to the company for no shipping charge. Stitch Fix charges its customers based on the number of pieces they retained, providing discounts for higher quantities purchased. Receiving a box of fashion/beauty

merchandise that has been custom-picked for the consumer adds to the thrill of the shopping experience. In the process, the customer also gets to learn about new styles and brands that are trending in the market. In addition, the convenience and timesaving factors add to the benefits of this in-home shopping mode (Smith 2015).

#### **Literature addressing consumer behavior toward SOS**

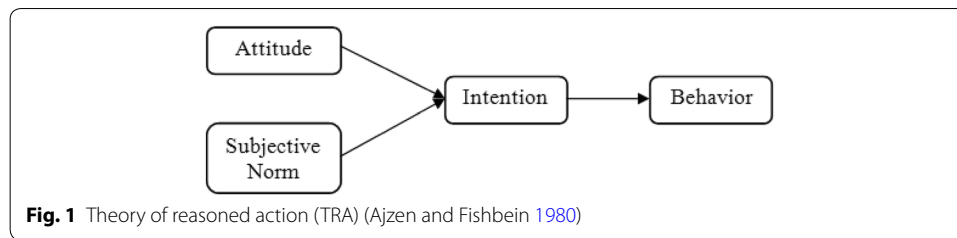
Though the SOS model has gained popularity among consumers and marketers alike with fashion and beauty SOSs such as Stitch Fix, Birchbox and Le Tote revolutionizing the subscription economy, empirical research on consumer behavior with regards to subscription services has been very limited. Specifically, attempts to understand the factors influencing consumers' attitude towards and intention to use SOS, especially for fashion and beauty products, is lacking.

Of the limited existing literature on subscription services, many focus on the pricing strategies of such services. In one such study, Danaher (2002) found that, when cell phone service providers employ a dual pricing system of a monthly subscription fee and a per-minute usage charge, customer attrition is higher with high access fees than usage charges. In another pricing-related study, Oster and Scott Morton (2005) observed that magazines that offer benefits for the future (such as investment magazines) charge higher subscription fees than those that offer immediate benefits (such as leisure magazines), thereby highlighting the change in pricing strategy based on the long- or short-term perceived benefits. Studying a subscription-type market such as car insurance, Dawes (2004) compared the impacts of price decreases and increases on defection rates and found the impact of price increases to be greater. By developing a model that predicts the lifetime duration of customers for SOSs, Dover and Murthi (2006) found that "customers who are billed monthly for annual subscriptions maintain their subscriptions longer than do customers billed quarterly" (p. 5), which leads to a higher lifetime duration.

Though these studies address ways to enhance customer retention through strategic pricing models, they reveal very less about the specific consumer characteristics or factors that lead customers to use the subscription service in the first place. More importantly, virtually none of the extant literature on subscription services, including the studies above, was focused on the emerging "box model" of online subscription-based services. The present study aims to fill this gap by identifying and testing the factors that influence consumers' attitude towards and intention to use a fashion/beauty SOS using the theory of reasoned action (TRA), which is discussed in the following section.

#### **Theory of reasoned action (TRA)**

The TRA is a theoretical model developed by Ajzen and Fishbein (1980) that aims to predict an individual's voluntary behavior based on the *intention* that the individual has to engage or not engage in that behavior. The theory posits that an individual's intention to behave is predicted by two determinants (1) the individual's positive or negative evaluations of performing that behavior, called *attitude*, and (2) the individual's perception of the social pressures on him/her to perform or not perform that behavior, called *subjective norm*.



According to the TRA, individuals who perceive a behavior as resulting in positive outcomes will hold positive attitudes towards that behavior. This in turn results in positive intentions to behave, thereby leading to the behavior itself. In the present SOS context, applying the TRA model, consumers who believe that they will positively benefit by subscribing to a fashion/beauty SOS will have favorable attitudes towards using the SOS, which will lead to an intention to use the SOS followed by subscribing to the SOS. Similarly, if an individual perceives that their referent individuals or groups expect them to activate a certain behavior—which is called subjective norm—their intention to perform that behavior also increases, leading to the behavior. Therefore, in the context of fashion/beauty SOS, if a consumer perceives high social expectation to use a particular SOS by his/her referents, then their intention to use that SOS will in turn be high. Figure 1 displays the original TRA model. Since the present study focuses on identifying and testing the factors that lead to favorable *attitude* towards and *intention* to use fashion/beauty SOS, actual behavior is not included as part of the main study.

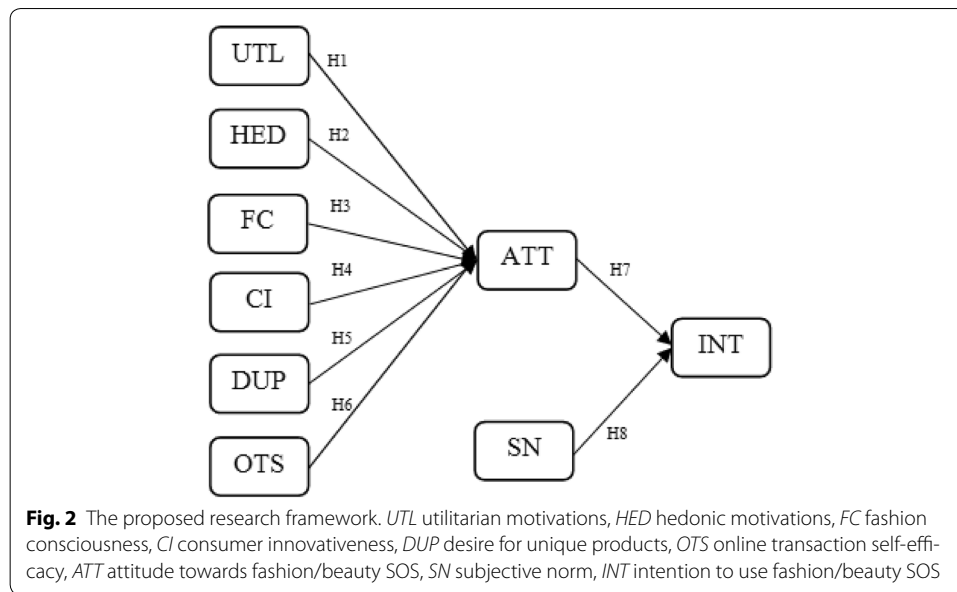
### Research framework

This study postulates the following as factors that influence consumers' attitude towards fashion/beauty SOS: utilitarian motivations, hedonic motivations, fashion consciousness, consumer innovativeness, desire for unique products and online transaction self-efficacy. In other words, consumers who rate high on each of these characteristics may be likely to form favorable attitudes and, in turn, greater intention towards fashion/beauty SOS. These factors, acting as the antecedents of attitude, are modeled in the TRA, which further explains the influence of attitude and subjective norm on intention to use fashion/beauty SOS. Figure 2 displays the research framework of the current study.

### Factors influencing attitude towards fashion/beauty SOS

#### *Utilitarian (UTL) and hedonic (HED) motivations*

In an attempt to explain consumer shopping motivations, Hirschman and Holbrook (1982) posited that consumers behave either as problem solvers, where products or services are purchased to achieve functional goals (such as buying a washing machine), or as experiential enjoyers, where products or services are consumed to achieve aesthetic or emotional goals (such as going to a concert). The former refers to a *utilitarian* motive whereas the latter to a *hedonic* motive. Consumers who are motivated to gain utilitarian benefits seek convenience, time savings, and value for money, whereas those motivated to gain hedonic benefits, seek entertaining, adventurous and out-of-the-routine



shopping experiences that can arouse and/or fulfill their senses (Overby and Lee 2006). Such consumers tend to choose shopping modes that align with their goals (To et al. 2007).

Voss et al. (2003) identify utilitarian and hedonic benefits as being integral in the formation of attitude towards a product or brand where the utilitarian component is derived from the product/brand's functions whereas the hedonic component is derived from the experience involved in acquiring the product/brand. Other previous research has also established such an effect of utilitarian and hedonic benefits of a behavior on forming consumers' positive attitudes toward the behavior in the context of shopping for a wide variety of product categories such as athletic shoes, dish detergent, food, jeans, jewelry, luggage, paper towels, personal computers etc. (Batra and Ahtola 1991; Crowley et al. 1992). This theoretical approach may be applied to the context of fashion/beauty SOS. The primary mode of using fashion/beauty SOS involves the consumer voluntarily creating an online profile indicating their likes and dislikes in terms of their product choices, based on which a stylist or curator selects and mails a customized box of merchandise to their doorstep. This activity reflects the consumer's spontaneous engagement with the fashion/beauty subscription service, implying that the consumer must be *motivated* to form favorable attitudes toward using those fashion/beauty SOS.

Specifically, by engaging in such an activity, the SOS offers utilitarian value to the consumer at a high level of convenience. For instance, using fashion and beauty SOS offers utilitarian benefits of cost saving (monthly subscription fee offers a discounted price for a box compared to purchasing items individually), convenience (saving time in selecting outfits/beauty products every month), selection and information availability (receive selection/trend reporting services from professional stylists), and lack of sociality (saving time for dealing with sales people). Hedonic benefits that fashion and beauty SOS provides include adventure/exploration (stylists randomly curate a box based on the customer profile entered and subscribers wait and open the box exploring what times they

have picked), idea (subscribers receive trendy/new products introduced by box curators), and social (subscribers can share their experiences with friends and/or other users through the SOS community). The SOS particularly features an adventurous, exploratory shopping experiences for users, by mimicking an experience of receiving a gift box as subscribers don't know what specific items were picked for their boxes until they open them for most fashion and beauty SOS. Based on the literature above, these utilitarian and hedonic benefits of using a fashion/beauty SOS could increase the consumer's attitude towards that service by motivating them to enjoy these benefits (Childers et al. 2002). Therefore, it is hypothesized that,

**H1:** *Utilitarian motivations positively influence attitude toward fashion/beauty SOS.*

**H2:** *Hedonic motivations positively influence attitude toward fashion/beauty SOS.*

### **Fashion consciousness (FC)**

*Fashion consciousness* is defined as the "desire for and adoption of up-to-date styles to maintain one's status in a social network" (Lertwannawit and Mandhachitara 2012, p. 1410), and reflects the extent of individual consumer's propensity towards fashion and fashion-related information. Fashion conscious consumers are characterized by a deep interest in fashion products and brands (specifically, clothing and accessories), as well as their physical appearance (beauty) (Gutman and Mills 1982). Previous research has found that fashion conscious consumers are more active in getting exposure to fashion media and resources and exploring fashion products (Bakewell et al. 2006). One of the most appealing benefits of fashion and beauty SOSs is that such services enable fashion conscious consumers to regularly receive new product samples and trend information, acting as a personal beauty/style assistant. Considering the fact that such trends may otherwise be out of reach to these consumers or can only be acquired upon extensive search and expense, fashion and beauty SOSs can be attractive to fashion conscious consumers by improving their access to trends. Therefore, consumers who are fashion conscious may form favorable attitudes towards using SOS, because those SOSs assist them with keeping up with new trends and fashion information. This leads to the hypothesis that,

**H3:** *Fashion consciousness positively influences attitude toward fashion/beauty SOS.*

### **Consumer innovativeness (CI)**

Researchers interested in studying diffusion of innovations faced the challenge of accurately placing consumers into discrete adopter categories (e.g., innovators, early adopters, early majority, late majority or laggard), which led to the conceptualization and development of a continuous variable, the *consumer innovativeness* measure (Goldsmith and Hofacker 1991). Consumer innovativeness is defined as "the predisposition to buy new and different products and brands rather than remain with previous choices and consumption patterns" (Steenkamp et al. 1999, p. 56).



Diverging from traditional shopping methods, SOSs offer precisely these benefits in the shopping experience by delivering new, unique and different products and brands to the customer every week/month to their doorstep. Availing a periodic fashion/beauty subscription box requires a high level of acceptance towards new and different products, or in other words high innovativeness, since these consumers are willing to accept clothes, accessories and/or beauty items that are not chosen by them but rather curated by the SOS (Le Louarn 1997). Therefore, our hypothesis proposes that consumers with high levels of innovativeness will be more likely to use fashion and beauty SOS that offer them opportunities to explore and purchase a variety of products. Specifically, based on our theoretical framework, TRA, such willingness toward using SOS will be manifested by first forming positive attitudes toward using SOS, prior to the behavior. Therefore, consumers with high innovativeness will be likely to form favorable attitudes toward fashion and beauty SOSs:

**H4:** *Consumer innovativeness positively influences attitude toward fashion/beauty SOS.*

#### ***Desire for unique products (DUP)***

Consumers' *desire to acquire unique products* has been acknowledged by a plethora of scholars as a tendency of immense practical importance in marketing (Kang and Kim 2012; Lynn and Harris 1997; Tian et al. 2001). Desire for unique products is the "trait of pursuing differentness relative to others through the acquisition, utilization, and disposition of consumer goods for the purpose of developing and enhancing one's self-image and social image" (Tian et al. 2001, p. 52). Nonconformity, or counter-conformity, and the avoidance of similarity are important behavioral manifestations of the desire to consume unique products (Tian et al. 2001). In other words, consumers who have a high desire to acquire unique products tend to choose products and brands that help them achieve a high level of social differentness while making choices of "good taste."

One of the key factors that may predict consumers' attitude toward SOS is their desire to possess goods and experiences that only few others possess. A fashion or beauty SOS can fulfill such a desire for unique products by offering custom-made boxes, which are created for individual customers based on the unique style and size profiles that they created when signing up for the subscription service online. Because of this benefit that fashion and beauty SOSs provide by catering to consumers' desire for unique products, our hypothesis proposes that consumers' desire for unique products will positively influence their attitudes toward such SOSs, which will in turn drive their intentions to use SOSs based on the TRA framework. Therefore,

**H5:** *Desire for unique products positively influences attitude toward fashion/beauty SOS.*

#### ***Online transaction self-efficacy (OTS)***

The motivation of individuals to make certain behavioral decisions has been long attributed to the individual's self-efficacy, which is the belief that one has the capability to perform a particular behavior (Bandura 1986). In the online shopping context, such belief



is referred to as *online transaction self-efficacy*, which is defined as “the belief of an individual in his or her ability to organize and execute certain behaviors necessary for the consumer to achieve certain objectives in online purchasing (e.g., a successful and satisfactory transaction) under uncertainty “(Kim and Kim 2005, p. 4)”. According to this concept, which is sometimes also broadly referred to in literature as internet self-efficacy or computer self-efficacy (Eastin and LaRose 2000; Faqih 2013), consumers with high online transaction self-efficacy are willing to transact with any online vendor with ease whereas those with low online transaction self-efficacy may not transact with any or all online vendors. Today’s SOSs rarely provide the option of subscribing to their products through an offline mode of transaction, such as mail or phone. Almost all SOSs, including fashion and beauty SOSs, require customers to create an online profile using their email or social media account and pay for the subscription service using an electronic payment method. Therefore, it can be concluded that, consumers who are confident and comfortable with transacting online, or in other words have high online transaction self-efficacy, are more likely to form favorable attitudes toward the SOS (Kim and Kim 2005). Thus, it is hypothesized that,

*H6: Online transaction self-efficacy positively influences attitude toward fashion/beauty SOS.*

#### **Influence of attitude (ATT) and subjective norm (SN) on intention (INT) to use SOS**

According to the TRA model explained earlier, an individual’s intention to engage in a certain behavior is influenced by both the individual’s attitude towards that behavior and their subjective norm (i.e., his/her perception that referent individuals or groups expect him or her to perform the said behavior). Previous services research has found that such causal relationships between consumers’ attitudes, subjective norm, and intentions could also be applied to the contexts of consumers’ reactions toward services. For instance, Lee (2012) found that consumers’ perceptions toward price fairness, risk averseness, and satisfaction with existing services influence their attitudes and intentions toward services innovations. Applying the TRA model to the internet banking services context, Chau and Ngai (2012) reported that consumers’ perceptions toward the ease of use and usefulness of the services form their attitudes toward the services and, in turn, drive their intentions to adopt the services. Therefore, consistent with the TRA model and previous research, this study hypothesizes that,

*H7: Attitude towards fashion/beauty SOS positively influences intention to use fashion/beauty SOS.*

*H8: Subjective norm related to fashion/beauty SOS positively influences intention to use fashion/beauty SOS.*

## **Methods**

### **Data collection**

Upon IRB approval, an online survey was administered on research participants via Amazon’s Mechanical Turk (MTurk). MTurk has been found to have “slightly more

demographically diverse” participants than other internet samples and data collected via this source is as reliable as those obtained via traditional methods (Buhrmester et al. 2011). As an incentive for taking the survey, each respondent received a \$0.60 compensation, which is well above the median wage earned by an MTurk participant (Shapiro et al. 2013). A total of 385 usable responses were received. The respondents were aged 18–66 ( $\mu = 33$ ) with 60% female. Table 2 displays the key demographic characteristics of the respondents. In addition to these variables, the states-of-residence of the respondents were very diverse from all over the US. The top five states where most of the respondents live were NY (88), CA (36), TX (23), FL (22) and PA (22).

### Survey administration and measurements

The survey began with a brief description of “What is a subscription-based online service?” followed by hypothetical examples of subscription-based services, as follows:

*“A subscription-based online service (SOS) provides periodic delivery of a customized box of merchandise directly to your home for a weekly/monthly subscription fee. First, you sign-up online using an email address or a social media account, then you enter your personal information and product preferences, such as, your tastes, lifestyle, and what kinds of products interest you. Then you select a weekly/monthly service where you choose to get a personalized box of merchandise every week/month based on the personal information/preferences you gave them, or choose a particular curated box of your interest. Once you pay for the selected service/box online using your credit card, the company will send you a customized box of merchandise directly to your home via mail.*

- *My Wardrobe (Fashion products): You enter your style, size and price preferences first, and then a box of 5 hand-selected clothing items is delivered to your door. You purchase what you like and send back the rest. You pay for only those products you decide to keep.*
- *Make-up Box (Beauty products): You enter your skin type, makeup styles and preferences, and a personalized box of beauty samples will be delivered to your door every month. \$10/month and \$110/year.”*

Upon reading the above description, respondents were asked to indicate their level of utilitarian (UTL) and hedonic (HED) motivations, fashion consciousness (FC), consumer innovativeness (CI), desire for unique products (DUP), online transaction self-efficacy (OTS), subjective norm (SN), attitude towards (ATT), and intention (INT) to use the fashion and beauty SOS.

Utilitarian motivations were captured using a, 20-item adapted scale that included six-dimensions—cost saving, convenience, selection, information availability, lack of sociality, and customized products or services—on a 7-point Likert scale (1 = strongly disagree to 7 = strongly agree) (To et al. 2007). Similarly, hedonic motivations were assessed using a 16-item adapted scale that included five-dimensions—adventure/explore, social, idea, value and authority and status—on a 7-point Likert scale (1 = strongly disagree to 7 = strongly agree) (To et al. 2007).

**Table 2 Demographic characteristics of survey respondents**

Demographic	Categories	Frequency	Percentage (%)
Age (mean = 33)	18–29 (Min. = 18)	186	48.3
	30–39	110	28.6
	40–49	41	10.6
	50–59	31	8.1
	60–66 (Max. = 66)	17	4.4
Gender	Male	153	39.7
	Female	231	60.0
	Choose not to disclose	1	0.3
Ethnicity	White or caucasian	285	74.0
	Hispanic or latino	37	9.6
	Black or African American	29	7.5
	Asian	24	6.2
	Pacific islander	0	0.0
	Native American	3	0.8
	Other or mixed	13	3.4
	Choose not to disclose	2	0.5
Income	\$19,999 or less	68	17.7
	\$20,000 to \$34,999	64	16.6
	\$35,000 to \$49,999	68	17.7
	\$50,000 to \$64,999	54	14.0
	\$65,000 to 79,999	41	10.6
	\$80,000 to \$99,999	39	10.1
	\$100,000 or more	51	13.2
Education	Some high school, no diploma	4	1.0
	High school graduate	42	10.9
	Some college but no degree	126	32.7
	Trade/technical/vocational training	7	1.8
	Associate degree	32	8.3
	Bachelor's degree	121	31.4
	Master's degree	42	10.9
	Professional degree	7	1.8
Employment	Doctoral degree	4	1.0
	Employed for wages	197	51.2
	Self-employed	36	9.4
	Out of work and looking for work	21	5.5
	Out of work but not looking for work	9	2.3
	A homemaker	20	5.2
	A student	77	20.0
	Military	3	0.8
	Retired	10	2.6
Unable to work	12	3.1	

Participants' fashion consciousness was measured using Sprotles and Kendall (1986) uni-dimensional "novelty-fashion consciousness" scale that included five items on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree). Consumer innovativeness was measured using Le Louarn's (1997) scale, which has three factors, namely, attraction to newness, autonomy in innovative decision and ability to take risks in trying

newness. The scale had six items on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree).

Respondents indicated their desire for unique products on Lynn and Harris' (1997) "desire for unique consumer products" scale which had eight items on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree). Further, online transaction self-efficacy was measured using a 4-item scale developed by Kim and Kim (2005) on a 7-point Likert scale (1 = strongly disagree to 7 = strongly agree).

Attitude towards using SOS was captured on a 7-point semantic differential scale (Childers et al. 2002) with items such as bad/good, inferior/superior, not worthwhile/worthwhile etc. Finally, subjective norm, and the intention to use fashion/beauty SOSs were measured using 3-item scales each, adapted from Limayem et al. (2000). Table 3 displays the measurement constructs, their scale items, sources and corresponding reliabilities.

Before testing hypotheses, a series of preliminary analyses were conducted to ensure the validity and reliability of the measurements. First, convergent validity of measurements was assessed through exploratory factor analyses (EFA) using principal component analysis with varimax rotation on SPSS. EFA indicated that all measurements report appropriate convergent validity, as the measuring items fell into the corresponding dimensions (for multidimensional variables)/constructs (for unidimensional variables) and the individual items within those same dimensions/constructs were highly correlated. For example, as theoretically proposed, utilitarian and hedonic motivations reported multi-dimensionality (one item in utilitarian and two items in hedonic motivation were deleted due to inappropriate factor loadings and were not included in hypotheses testing; some dimensions were merged when falling into the same factor), and the other constructs reported uni-dimensionality. The factors cumulatively explained over 60% of variances of all constructs, supporting the convergent validity of the measurements.

Inter-variable correlation analysis on SPSS showed that, while the items within each construct were highly correlated in EFA, there was no exceptionally high correlation between the constructs, thereby establishing appropriate discriminant validity of the measurements. Reliability of measurements was assessed using Cronbach's alpha values. As Table 3 presents, reliabilities of all constructs were acceptable with Cronbach's  $\alpha$  values ranging between 0.630 and 0.975. Finally, in order to test the research framework and the hypotheses, maximum likelihood (ML) estimation method using structural equation modeling (SEM) was performed on LISREL. The results are presented in the following section.

## Results

An initial theoretical model was specified on LISREL, resulting in a model (Fig. 2) with a Chi square value that was not significant [ $\chi^2(6) = 37.55, p < 0.05$ ], but other fit indices displayed a marginal fit (RMSEA = 0.12, CFI = 0.98, GFI = 0.98). This indicated that the theoretical model could be under-identified, showing room for improvement. This prompted to examine the modification indices that revealed two possible direct paths from consumer innovativeness (CI) to intention (INT) and from desire for unique products (DUP) to intention (INT). Though these paths were not part of the proposed

**Table 3 Measurement items and reliabilities**

Construct	Scale items	Source	Reliability Cronbach's $\alpha$
Utilitarian motivations	<p data-bbox="512 373 608 394">Cost saving</p> <p data-bbox="523 432 927 480">(1) I could save my money by shopping at such subscription-based online services</p> <p data-bbox="523 485 997 533">(2) I could spend less when I shop at such subscription-based online services</p> <p data-bbox="523 537 983 585">(3) Such subscription-based online service could offer me competitive prices</p> <p data-bbox="512 596 624 617">Convenience</p> <p data-bbox="523 638 951 686">(4) I could shop at such subscription-based online services whenever I want</p> <p data-bbox="523 690 951 739">(5) I could shop at such subscription-based online services without going out</p> <p data-bbox="523 743 997 791">(6) Shopping at such subscription-based online services would not have conflict with my schedule</p> <p data-bbox="523 795 970 844">(7) Such subscription-based online service would be convenient to me</p> <p data-bbox="512 854 592 875">Selection</p> <p data-bbox="523 896 963 945">(8) I could access a variety of merchandises via such subscription-based online services</p> <p data-bbox="523 949 975 997">(9) I could access many brands via such subscription-based online services</p> <p data-bbox="523 1001 997 1050">(10) I could access a wide selection of merchandises via such subscription-based online services</p> <p data-bbox="512 1060 708 1081">Information availability</p> <p data-bbox="523 1102 997 1150">(11) Such subscription-based online services would give me quick access to large volumes of information</p> <p data-bbox="523 1155 951 1203">(12) Information obtained from such subscription-based online services would be useful</p> <p data-bbox="523 1207 963 1255">(13) Such subscription-based online services would make acquiring information easily</p> <p data-bbox="512 1266 644 1287">Lack of sociality</p> <p data-bbox="523 1308 963 1356">(14) Such subscription-based online services would enable me to avoid social interaction with others</p> <p data-bbox="523 1360 963 1409">(15) Such subscription-based online services would enable me to avoid salespeople</p> <p data-bbox="523 1413 983 1461">(16) Such subscription-based online services would enable me to buy things online without embarrassment</p> <p data-bbox="512 1472 791 1493">Customized products or services</p> <p data-bbox="523 1514 991 1562">(17) Such subscription-based online services' purchase recommendations would match with my needs</p> <p data-bbox="523 1566 963 1614">(18) I could order products that are tailored for my needs at such subscription-based online services</p> <p data-bbox="523 1619 991 1667">(19) Such subscription-based online services would be customized to my needs</p> <p data-bbox="523 1671 963 1719">(20) Such subscription-based online services would make me feel that I am a unique customer</p>	To et al. (2007)	0.919

**Table 3 continued**

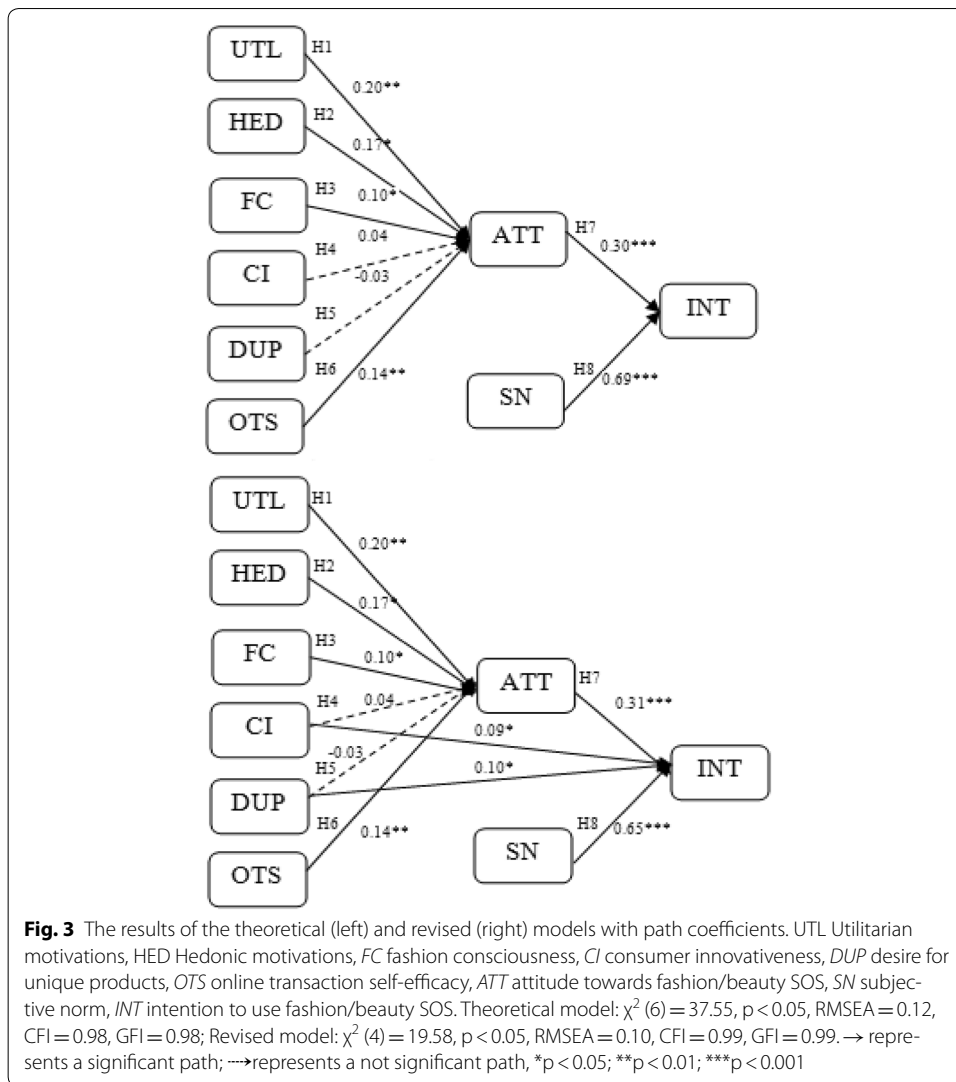
Construct	Scale items	Source	Reliability Cronbach's $\alpha$
Hedonic motivations	Adventure/explore	To et al. (2007)	0.917
	(1) Such subscription-based online services would make me feel like I am in my own universe		
	(2) I find such subscription-based online services stimulating		
	(3) To me, such subscription-based online services would be an adventure		
	Social		
	(4) I could exchange information about such subscription-based online services with friends		
	(5) I could share my experiences with such subscription-based online services others		
	(6) I could develop friendships with other shoppers by shopping at such subscription-based online services		
	(7) I could extend my relationship with others by shopping at such subscription-based online services		
	Idea		
	(8) I could keep up with the trends by shopping at such subscription-based online services		
	(9) I could keep up with the latest fashion by shopping at such subscription-based online services		
	(10) I could see what new products are available at such subscription-based online services		
	Value		
	(11) Shopping at such subscription-based online services would provide sales		
	(12) Shopping at such subscription-based online services would give me discounts		
(13) Shopping at such subscription-based online services would enable me to hunt for bargains			
Authority and status			
(14) When shopping at such subscription-based online services I would feel in control			
(15) At such subscription-based online services, I would have control over my shopping process			
(16) Such subscription-based online services would allow me to control my shopping trip			
Fashion consciousness	(1) I usually have one or more outfits of the very newest style	Sprotles and Kendall (1986)	0.881
	(2) I keep my wardrobe up-to-date with the changing fashions		
	(3) Fashionable, attractive styling is very important to me		
	(4) To get variety, I shop different stores and choose different brands		
	(5) It is fun to buy something new and exciting		
Consumer innovativeness	Attraction to newness	Le Louarn (1997)	0.630
	(1) I am the kind of person who tries every new product at least once		
	(2) When I hear about a new product, I try to know more about at the first occasion		
	Autonomy in innovative decision		
	(3) Before trying a new product, I try to learn what friends who possess this product think about it <sup>a</sup>		

**Table 3 continued**

Construct	Scale items	Source	Reliability Cronbach's $\alpha$
Desire for unique products	(4) I seek out the opinion of those who have tried new products or brands before I try them <sup>a</sup>	Lynn and Harris (1997)	0.888
	Ability to take risks in trying newness		
	(5) I'd rather choose a brand that I usually buy rather than try something I am not confident in <sup>a</sup>		
	(6) I never buy something I do not know anything about with the risk of making a mistake <sup>a</sup>		
	(1) I am very attracted to rate objects		
	(2) I tend to be a fashion leader rather than a fashion follower		
	(3) I am more likely to buy a product if it is scarce		
	(4) I would prefer to have things custom-made than to have them ready-made		
Online transaction self-efficacy	(5) I enjoy having things than others do not	Kim and Kim (2005)	0.816
	(6) I rarely pass up the opportunity to order custom features on the products I buy		
	(7) I like to try new products and services before others do		
	(8) I enjoy shopping at stores that carry merchandise, which is different and unusual		
	(1) I am confident that I can obtain relevant information through online sources (e.g., online discussion groups, reputation sites, etc.) on the web vendor from whom I am planning to make online purchases		
	(2) I am confident that I am usually able to purchase exactly the item that I want from Web vendors		
	(3) I am confident that, in case my order does not come through in a satisfactory manner, I am able to take care of the problem(s) on my own		
	(4) I am confident that I am able to find a trustworthy web vendor based on ratings (e.g., the number of the stars or the smiley faces) provided by other consumers		
Attitude toward fashion/beauty SOS	(1) Bad/good	Childers et al. (2002)	0.947
	(2) Inferior/superior		
	(3) Unpleasant/pleasant		
	(4) Boring/interesting		
	(5) Poor/excellent		
	(6) Not worthwhile/worthwhile		
	(7) Not useful/useful		
Subjective Norm	(1) My family members (e.g. parents, spouse, and children) would think that it is a good idea to make purchase through SOS	Limayem et al. (2000)	0.975
	(2) The media frequently suggests us to make purchase through SOS		
	(3) My friends would think that it is a good idea to make purchase through SOS		
Intention to use fashion/beauty SOS	(1) I intend to purchase through SOS in the near future (e.g. next 3 months)	Limayem et al. (2000)	0.818
	(2) It is likely that I will purchase through SOS in the near future		
	(3) I expect to purchase through SOS in the near future		

<sup>a</sup> Reverse coded item





**Table 4 Comparison of theoretical and revised models using chi square difference test**

Model	GFI	RMSEA	CFI	$\chi^2$	df	$\chi^2_{diff}$	df <sub>diff</sub>	p value
Theoretical model	0.98	0.12	0.98	37.55	6	-	-	-
Revised model	0.99	0.10	0.99	19.58	4	17.97	2	<0.001

theoretical model and hypotheses, a revised model was specified adding these paths to test whether the resulting model will be better fitted than the theoretical model. The results showed that the revised model (Fig. 3) had a better fit [ $\chi^2(4) = 19.58, p < 0.05, RMSEA = 0.10, CFI = 0.99, GFI = 0.99$ ], and a Chi square difference test confirmed the same [ $\chi^2_{diff}(2) = 17.97, p < 0.001$ ]. Table 4 shows the result of the Chi square difference test between the theoretical and revised model. The revised model was accepted as a parsimonious model and was therefore used to interpret the hypothesized paths.

The results of the hypothesized paths in the revised model found support for the paths between utilitarian motivations (UTL)  $\rightarrow$  attitude (ATT) ( $\gamma = 0.20, p < 0.01$ ), hedonic

motivations (HED)  $\rightarrow$  attitude (ATT) ( $\gamma=0.17, p<0.05$ ), fashion consciousness (FC)  $\rightarrow$  attitude (ATT) ( $\gamma=0.10, p<0.05$ ) and online transaction self-efficacy (OTS)  $\rightarrow$  attitude (ATT) ( $\gamma=0.14, p<0.01$ ). Therefore, H1, H2, H3 and H6 were supported. However, the paths between consumer innovativeness (CI)  $\rightarrow$  attitude (ATT) ( $\gamma=0.04, p>0.05$ ) and desire for unique products (DUP)  $\rightarrow$  attitude (ATT) ( $\gamma=-0.03, p>0.05$ ) were not significant, thereby finding no support for H4 and H5. Further, the hypotheses in the TRA, i.e., attitude (ATT)  $\rightarrow$  intention (INT) ( $\gamma=0.30, p<0.001$ ) and subjective norm (SN)  $\rightarrow$  intention (INT) ( $\gamma=0.69, p<0.001$ ) were significant, thereby supporting H7 and H8. In addition to the hypothesized paths, two additional significant paths between consumer innovativeness (CI)  $\rightarrow$  intention (INT) ( $\gamma=0.09, p<0.05$ ) and desire for unique products (DUP)  $\rightarrow$  intention (INT) ( $\gamma=0.10, p<0.05$ ) revealed new relationships in the revised model that were not originally hypothesized. Figure 3 displays both the theoretical and revised models with path coefficients.

In terms of the relative weights of the coefficient values, for consumers' attitudes toward fashion and beauty SOS, utilitarian motivations reported the highest impact ( $\gamma=0.20$ ), followed by hedonic motivations ( $\gamma=0.17$ ), online transaction self-efficacy ( $\gamma=0.14$ ), and fashion consciousness ( $\gamma=0.10$ ). However, the differences between these coefficient values were rather marginal (i.e., 0.03–0.10). For consumers' intentions toward fashion and beauty SOS, subjective norm was little more influential ( $\gamma=0.65$ ) than attitude ( $\gamma=0.31$ ).

## Discussion

This study began with the aim of identifying and testing the factors that influence consumers' attitude towards and intention to use fashion/beauty subscription-based online services (SOS), an emerging phenomenon in retail services, by using the TRA model as a theoretical foundation. The results of data analyses found support for six of the eight hypotheses, in addition to two unexpected relationships revealed by the SEM approach that were not originally predicted by the TRA model.

Firstly, as predicted, consumers' utilitarian (H1) and hedonic (H2) motivations were found to positively influence their attitude towards using fashion/beauty SOS and they in turn significantly predicted intentions to use fashion/beauty SOS. In other words, consumers' perception of the utilitarian benefits—convenience, time-saving, and lack of sociality (i.e., no need for interacting with sales personnel in stores)—and hedonic benefits—exploratory nature, adventurousness, and giving (fashion) ideas—of fashion/beauty SOS drove their favorable attitude towards and intention to use those services. This result has support in online retailing literature (Childers et al. 2002; Monsuwé et al. 2004), where utilitarian dimensions such as “ease of use” and “usefulness,” and hedonic dimensions such as “enjoyment,” were found to be significant determinants of consumers' attitude towards online shopping sites. In fact, prior research even suggests that consumers' attitude towards certain products and brands may have underlying utilitarian and hedonic dimensions (Batra and Ahtola 1991; Voss et al. 2003), revealing the integral relationships between these constructs.

This study also found that consumers who rate themselves high in fashion consciousness (H3) indicated favorable attitudes towards fashion/beauty SOSs. This finding is consistent with prior research (Zhang and Kim 2013), which means that fashion conscious

consumers seek to fulfill their need to stay up-to-date with trends by subscribing to fashion/beauty SOSs. This therefore may indicate that fashion/beauty SOSs could be used as a source of information and product acquisition with regards to the latest fashion and beauty trends, which in turn allows these fashion conscious consumers to maintain their status in their social circles (Lertwannawit and Mandhachitara 2012).

The next finding revealed that, contrary to what was predicted, consumer innovativeness (H4) and desire for unique products (H5) did not have a significant positive influence on attitude towards fashion/beauty SOS. However, the modification indices in the structural model indicated that, instead of being mediated by attitude, consumer innovativeness and desire for unique products directly influenced intention to use fashion/beauty SOS. This finding reveals evidence that is different from the mainstream literature built upon TRA, which assumed that consumers form a positive attitude first to guide their behavioral intention (H4 and H5 were built upon this theoretical assumption). This finding is inconsistent with the original TRA model, but might suggest that highly innovative consumers with strong desire for unique products can directly form an intention to use fashion/beauty SOS, without a pre-formed positive attitude towards those services. Since some recent research studies also observed such an attitude-intention gap (Coward et al. 2008; Vermeir and Verbeke 2006), further investigation is needed to verify if this finding against the mainstream theory (i.e., TRA) is worth reconsidering the theoretical proposition of the literature.

Further, consumers with high online transaction self-efficacy were found to form favorable attitude towards and, in turn, intention to use fashion/beauty SOSs (H6). This finding is in line with literature (Kim and Kim 2005), confirming that consumers who have belief in their capability to transact on online shopping websites, such as SOS, are likely to have positive attitudes towards such services. The need to perform tasks that require some basic level of computer operations and e-commerce use make this a prerequisite for a consumer to have proclivity to use a fashion/beauty SOS as opposed to shopping from other types of fashion/beauty retailers.

Finally, the causal relationships between attitudes, subjective norm, and behavioral intentions in the TRA model were found to be significant, which means that, in the fashion/beauty SOS context, a consumer's attitude and subjective norm significantly influences their intention to use those SOS. In other words, consumers with positive evaluations of a fashion/beauty SOS, along with a perception of referent group expectation towards usage of that SOS will intend to use that fashion/beauty SOS. This supports a plethora of other studies that confirm these theoretical relationships. More interestingly, in our findings, subjective norm was a little more influential in driving consumers' intentions to use fashion and beauty SOS than their attitudes, based on the comparison of coefficient values; this implies that for this particular behavior of using fashion and beauty SOS, the role of consumers' reference groups could be especially critical in enhancing their intentions to use such SOS.

### **Implications**

The findings of this study offer important theoretical and managerial implications. This study contributes to early theoretical explorations in the context of SOS, an emerging phenomenon in online retail services, specifically in the fashion and beauty arena.

Though the fashion and beauty SOS market has achieved enough success to attract leading global retailers towards the box model (Randall et al. 2016), research to understand consumer behavior in this type of service has been limited. As one of the first studies in this area, this study was conceptualized with the notion that theoretical explorations of this topic could potentially reveal evolving trends in consumption behavior of fashion and beauty products towards a modern version of home-based shopping modes, namely SOS. By employing the TRA as a theoretical foundation, this study not only found factors that influence attitude towards fashion/beauty SOS, namely, utilitarian and hedonic motivations, fashion consciousness and online transaction self-efficacy, but also found interesting relationships between consumer innovativeness → intention and desire for unique products → intention, which was an unexpected extension of the original model. Further, even though this study was conducted specifically in the fashion/beauty SOS context, except for fashion consciousness, other factors including utilitarian and hedonic motivations, consumer innovativeness and online transaction self-efficacy can be theoretically applied to most other product categories being sold using this popular box-model of subscription service.

As implications for managers and marketers of fashion and beauty SOS, this study suggests the traits of consumer groups who have favorable attitudes and intention to use fashion/beauty SOS and helps understand their motivations and needs. Subscription-based services operate based on a loyal group of customers, the “subscribers.” The success of the SOS model highly relies on how well the service providers identify these subscribers and maintain satisfactory relationships by continuously providing them with the benefits they are looking for, and this applies to fashion/beauty SOSs as well. The findings of this study suggest targeting consumers that are looking to fulfill utilitarian (functional) and hedonic (aesthetic) needs through their shopping experiences with SOSs. Focusing on the “convenience” of subscribing to a fashion and/or beauty SOS combined with the “adventurous, surprise-seeking” aspect of the shopping experience in the marketing message could attract consumers who are likely to provide a high lifetime value to the company. In addition, fashion and beauty SOSs can streamline their promotional efforts toward fashion conscious and innovative consumers by highlighting their services of providing latest trend and fashion information, uniqueness and customized aspect of their product offerings.

In addition, subjective norm—how consumers believe that their reference groups expect them to activate a certain behavior—was found to be a significant driver of consumers’ intention to adopt fashion and beauty SOS in the current study. Based on the comparison of coefficient values, the impact of subjective norm was even more influential than consumers’ own attitudes toward fashion and beauty SOS. Based on this finding, fashion and beauty SOSs should consider utilizing consumers’ subjective norm in designing their marketing strategies. For instance, they can provide a free 1-month subscription to highly rated fashion/beauty bloggers and/or YouTubers who could in turn promote the SOS website/app to their followers. In addition, SOS marketers can provide a referral bonus to subscribers who invite friends and/or family, leveraging the effect of subjective norm to expand their subscriber base.

On the flipside, the findings of this study revealed some potential barriers for customers in adopting SOS. Since consumers’ online transaction self-efficacy increased their

attitudes and intentions to use fashion/beauty SOS, consumers with low online transaction self-efficacy are likely to find it challenging to use SOSs. In such case, the SOS providers might consider using phone or mail-based registration, style profiling, payment, and customer service in addition to the online interface to include those with low online transaction self-efficacy to their subscriber base.

### **Limitations and future studies**

Although this study suggests theoretical and managerial contributions, a few limitations remain. First, though this study collected reliable and valid data by first providing a description of SOS followed by capturing responses to the construct measures, an experimental approach where participants browse through a hypothetical fashion/beauty SOS website and then answer questions on relevant measurement items could provide a more engaging setting for the respondents. Secondly, this study only focused on fashion and beauty SOS among a variety of other product categories that are sold using the SOS business model. Since some of the selected variables (e.g., fashion consciousness) might be less relevant to the other product categories, future research can explore new antecedents and moderating variables to extend the TRA model to other SOSs. Also, some findings of this study were inconsistent with the established theory (i.e., TRA), such as the direct influence of consumer innovativeness and desire for unique products on consumers' intentions to use SOSs than on attitude. With a few other researchers who found similar counterarguments (e.g., Cowart et al. 2008; Vermeir and Verbeke 2006), further exploration and debate is needed on the conceptualization of the direct/indirect relationship between consumer attitudes and intentions. Finally, the use of crowd-sourcing websites, such as MTurk, has been recently contested with fair population representation being one of the issues raised and can be a limitation to this study. To address this limitation, future studies can use another source of recruiting participants, such as proportional sampling by a professional survey firm, in addition to complement the data captured by MTurk in order to ensure wider representation.

### **Conclusion**

To summarize, this study found that consumers who seek utilitarian and hedonic benefits, and are fashion conscious, with online transaction self-efficacy, would have positive, favorable attitudes towards fashion/beauty SOS, which, along with subjective norm, leads to purchase intention. On the other hand, consumers with high innovativeness and desire for unique products directly intend to use fashion/beauty SOS without necessarily forming favorable attitudes towards such services first.

#### **Authors' contributions**

BR participated in ideation, survey development, and data collection, and carried out data analyses, interpretation, and drafting and revising the manuscript as the lead author. HW participated in ideation, survey development, data collection, manuscript revision, and managed submission process as the corresponding author. Both authors read and approved the final manuscript.

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**Competing interests**

The authors declare that they have no competing interests.

**Ethics approval and consent to participate**

This study was subject to the Human Subject Participant-based study and was reviewed and approved as an exempt protocol by The State University of New York at Oneonta and Auburn University Institutional Review Boards (IRB). Following their instructions, written informed consent was provided to the participants and their agreements were obtained.

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