Article

Factors Affecting Online Impulse Buying: Evidence from Chinese Social Commerce Environment

Umair Akram [1,*], Peng Hui [1], Muhammad Kaleem Khan [1], Chen Yan [1] and Zubair Akram [2]

[1] School of Economics and Management, Beijing University of Posts and Telecommunications, 10th Xitucheng Road Haidian District, Beijing 100876, China; penghuigrace@126.com (P.H.); mkaleemkhan@yahoo.com (M.K.K.); 13520119233@163.com (C.Y.)

[2] School of Management and Economics, Beijing Institute of Technology, Beijing 100081, China; zubairakram91@yahoo.com

* Correspondence: leo_umairinfo@yahoo.com

Abstract: First, the purpose of this study is to examine the impact of situational variables, scarcity and serendipity, on online impulse buying (OIB) in Chinese social commerce (SC) environment. Second, the study further assesses the moderating role of five dimensions of hedonic shopping value. Data were gathered from 671 online shoppers who come from two metropolitan cities of China, Beijing, and Shanghai. Structure equation modeling utilized was generated by AMOS 23 version to test the study hypotheses. The results confirm that situational factors positively influence the online impulse buying among Chinese online shoppers in SC environment. Four dimensions of hedonic shopping value (social shopping, relaxation shopping, adventure shopping and idea shopping) positively moderate the relationship between serendipity and OIB; value shopping is insignificant with moderation effect. The finding is helpful to the online retailers and SC web developers by recommending them to take the scarcity and serendipity in their consideration. These factors have the potential to motivate the consumers to initiate the hedonic shopping aptitude to urge to buy impulsively. Unlike the previous work which remained unsuccessful in incorporating all factors into one study, this study has incorporated irrational and unplanned consumption along with rational and planned one in the same research.

Keywords: online impulse buying behavior; scarcity; serendipity; social shopping; adventure shopping; value shopping; idea shopping; relaxation shopping; Chinese social commerce

1. Introduction

Utilizing social apps and websites is a popular trend worldwide, not to mention in China. Social commerce (SC) is also an emerging craze among online consumers. It is mentioned as a vital and recurrent subject in e-commerce [1]. With the rapid growth of web 2.0, social media has provided a huge potential to transform e-commerce from a product-oriented environment to a social and customer-centered one [2]. The global sales of SC reached US$5bn in 2015 and it is forecasted that this total would increase steeply [3]. SC could be described as one kind of e-commerce that uses social media, social networks, and consumer involvement to promote the online shopping of products or services. By this, it satisfies the needs and demands of the current consumers. Figure 1 shows the Triad Rational Model of the socioeconomic life SC on the Internet today. The three spheres of human perspective represent in this model, e-commerce, particularly person-to-person interaction, is viewed as vital to the online social networks and web 2.0 technologies. Technology is the pragmatic reality. The applications of web 2.0 provide tools such as Wikis, blogs, RIA, RSS which integrate social media into e-commerce websites. For instance, by making it possible for online consumers to have RSS feeds of daily or weekly updates with community feedback or links for collaborations,

it becomes easier for niche market users to purchase products or services. With regards to social media users, they obtain benefits related to cultural and social aspects but these benefits are not merely financial. In terms of social media users, they want to be co-creator of their buying and social experiences and also they control their socioeconomic lives on the Internet. The conception of Figure 1 demonstrates that the integration of business, community, and technology under the social commerce environment can generate success and benefits for users in every cluster. Every user in conceptual map gets remunerations when the relationships are bound by respect, quality, and fulfillment [4].
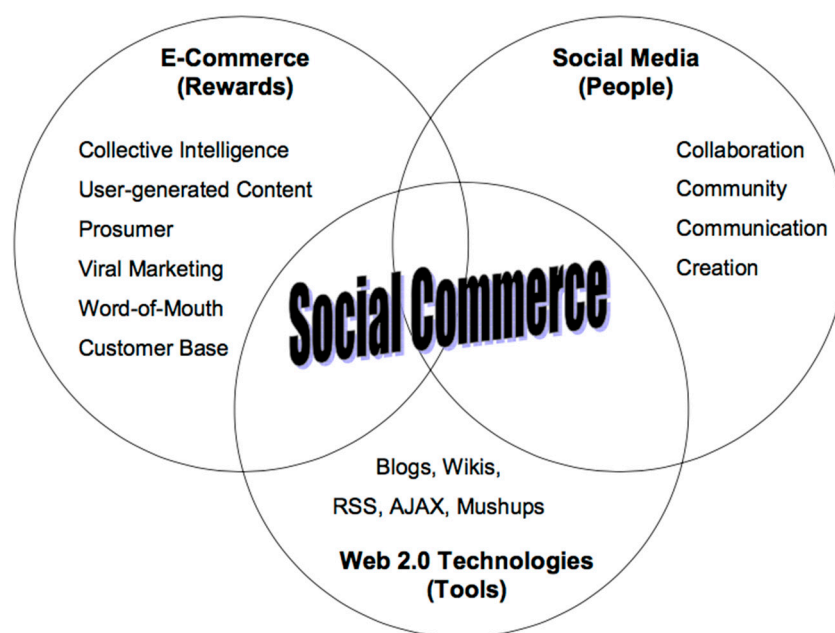

Figure 1. A Triad Relational Model of Socioeconomic Life on the Web [4].

Consumers prefer to buy things online due to its convenience motive. Online buying is preferred because it offers a large portfolio of opportunities to select and access full information. Consumers cannot only access the online stores anytime; they can also compare the offerings of venders internationally [5]. According to LaRose [6], constrained opening and closing times, product availability and physical location are distinguishing factors of traditional business, but online businesses are not affected by these factors. In addition to these benefits, other factors like less social pressure and absence of delivery efforts are contributing ingredients in SC which ignite the online consumers to buy impulsively while making their purchase decisions [7]. Dawson and Kim [8] noted that consumers find online shopping more convenient than offline shopping; such convenience also motivates impulse buying.

Recently, many scholars have paid considerable attention to work on OIB behavior [7–10]. Few scholars have posited that emotions control the impulse buying process and that OIB is an outcome of hedonics motivations [11,12]. Additionally, according to some studies [13–15] hedonic motivation and impulse buying have a positive relationship; hedonic consumers are more involved to buy impulsively. OIB is strongly influenced by hedonic motivation [11]. All prevailing studies have successfully extended the literature in the field of OIB, but an advent thread is needed to clarify the role of multidimensional hedonic motivating factors in enhancing the OIB. Present study fulfills this gap.

The consumers of modern era are significantly focusing on a hedonic and experimental style of consumption such as impulse buying [16,17]. They are motivated to enjoy shopping more than buying what they really need [18]. This situation very commonly happened in social commerce settings [17], as SC deals with buying and paying, convenient searching or exploring [19], and many stimulators of impulse buying such as a scarcity message [17].

One of the significant features of SC is unreasonable behavior influenced by impulse buying emotion. The impulse buying behavior (IBB) is considered as negative behavior, as it is an irrational action rather than a planned shopping. Impulse buying and rationally planned buying are two distinct types of shopping in which the former is getting fame because it adds the feeling of satisfaction and enjoyment in the shopping, whereas the latter is considered as a duty [18].

Another theoretical viewpoint that contributes to our understanding of the inspiration procedures in SC is the situational factor. We discuss two situational factors in SC, scarcity (e.g., limited time or quantity) and serendipity (e.g., surprising discoveries). When consumers find services or products on a website abruptly, serendipitous information from discovering information can be elicited to their emotional affection [20]. This SC setting allows consumers to discover useful information that fits their choices [21]. When product information found in a planned search is different from the information discovered during navigation, it can elicit behavior of impulsive buying [21]. The second situational factor is scarcity message, which alerts consumers that there is a limited time and quantity of a product [22], causing impulsive behavior. For example, coupons are valid online for a designated length of time [23], so they incite impulsive behavior.

Trends in buying are closely linked to the environment. The urge to buy more creates pressure on manufacturers to produce more. This environment receives threats due to raising concerns about resource consumption and wastes. Shopping is often described with respect to its contribution to over-consumption rather than sustainability. Here comes the role of social commerce. Social commerce has been significantly contributing to the development of the economy. Not only this, the most advantageous factor of social commerce is that it creates awareness among the masses. Due to extant trends in social e-commerce, people are more informed about available products and underlying threats to the environment. Emerging marketing trends through social commerce should be seriously considered in studies. Social marketers can work on the development of behavioral interventions at both individual and community levels that look to influence consumption practices as well as corporate behavior.

Impulse buying behavior has some hedonic features (e.g., social shopping (SS), adventure shopping (AS), value shopping (VS), relaxation shopping (RS), and idea shopping (IS), the focus of many previous researches on rational or utilitarian factors such as convenience [19]. Very few studies have investigated the situational factors (e.g., scarcity message and serendipity) of SC inducing consumers' impulsive buying behavior. Therefore, SC users who are more sensitive to scarcity messages tend to buy products online through social commerce communities in China. This manuscript provides a better understanding of situational factors and hedonic shopping features that can impact online impulse buying in China with the perspective of social commerce communities. Based on aforementioned discussions the purpose of current manuscript is threefold: (1) to examine the association between situational factors (e.g., scarcity message and serendipity) and online impulse buying in Chinese social commerce environment; (2) to assess the impact of hedonic shopping features on OIB; (3) to investigate the moderating role of hedonic features in the relationship between situational factors and OIB in Chinese SC environment.

This manuscript is organized into the following different parts: The first part is the introduction; part two reviews literature of OIB in social commerce, situational factors and finally hedonic shopping features. Part three proposes the theoretical model and hypotheses, followed by the description of data gathering and analysis of the results. Part four summarizes the managerial and academic implications of current research. Finally, the limitations and conclusions of this manuscript are presented.

2. Literature Review

2.1. Online Impulse Buying

Consumers' buying decision-making has usually been considered as judicious or rational. Consumers identify and monitor services or products and then compare and evaluate them before

choosing the best suitable ones [24]. Yet, the propagation of online platforms or channels and information technology (IT) encouraged impulsive behavior by increasing consumers' access to services and products [11,25,26] and making the process of payment and purchase much easier.

Impulse buying behavior is considered as an important topic and described in different ways by marketing scholars. According to [27], in the early stage of research, it was described as unplanned and immediate purchase behavior while shopping but later an unplanned action was recognized as different from an unplanned buying [28]. Rook [29] mentioned that impulse buying behavior is connected with a sudden buying, accompanied by strong feelings of excitement and joy. Beatty and Ferrell [18] reported impulse buying behavior as an action of purchasing a product without planned action and a behavior shown prior to an actual buying.

Impulsiveness/Impulsive buying behavior is described as "Consumers tendency to buy immediately, unreflectively, kinetically and spontaneously" [30]. Many researchers have paid substantial attention to a consumer's impulse buying and impulsiveness traits, both in the online and traditional shopping store [31]. According to Zhang [32] many traits influence online shopping context, and intention to buy online is increasing due to impulsiveness.

2.2. Scarcity

The concept of scarcity is highly valued in classical economics. Microeconomic theory illustrates that if all the other things remain constant, scarcity acts as a force to create a trade-off between supply and demand of a certain product in a free market. Scarcity constrains the supply, and lets the price increase continuously so that the supply of that product becomes equal to the perceived demand. Here, the concept of consumers' preferences must be treated with caution. Given the scarcity available in the market, prices tend to increase because scarcity increases competition for a product, not because scarcity increases the product's desirability. Similarly, the demand goes down with supply because scarcity prices a product out of reach of many consumers, not because scarcity decreases the desirability of the product. Thus, with the increase in scarcity, market value of product increases and demand decreases whereas psychological value remains constant [33].

Naïve economic theory [33], commodity theory [34], theory of psychological reactance [35] and the theory of need for uniqueness [36] have been posited to explain the effect of scarcity. According to these theories, scarcity increases the importance of products and services. All these theories assume that consumers tend to have much stronger needs for unique or scare products and services. Lynn [37] elucidated this prodigy as "a fundamental precondition of economic behavior and a pervasive aspect of human life."

According to Lynn [22], scarcity messages are valuable to boost impulsive behavior. Online retailers and sales professionals use jingles such as "limited release" or "two minutes left" to put psychological pressure on consumers. In social commerce environment, consumers are attracted due to scarcity message to purchase products and services which will not be available for a long time. In social commerce, limits take the forms of quantity and time [38]. Limited quantity limits the number of quantity of available services and products; whereas limited time limits the period of buying particular products and services.

The indication of scarcity is more likely to persuade the consumer to click or touch the products; this indication may be on web or shopping app. Therefore, the current study assumes that a scarcity message significantly influences online impulse buying behavior among the users of social commerce.

2.3. Serendipity Information

Discovery and search are two different ways to get information online. Consumers input particular sentence or words into a search engine to search for information. When people find interesting information accidentally, they "discover" that information. Online shopping environment is very convenient due to the popularization of smartphones; the importance of discovering information has been focused by websites, and by developers of applications and marketing scholars [21].

Information which is related to consumer's interest and exposed by coincidence is called serendipity information [20]. Therefore, serendipity is a part of web browsing experience [39]. Previous studies have focused on both the hedonic [11,40–42] and utilitarian facets [41,43] of serendipity. Earlier studies stated that serendipity increases a consumer's experience [43], and the later studies have asserted that serendipitous information gives consumers satisfaction and happiness [21,44] by letting them search new products.

2.4. Shopping Value

Shopping proceeds towards purchase. Shopping value is an evaluation that consumers make [45]. People see shopping value as a medium of eliciting positive emotions such as joy, enjoyment, (hedonic) or a way to attain what they need (utilitarian). With the deeper investigation of utilitarian and hedonic shopping value, the retailers may adopt effective methods and present shopping task realistically to satisfy consumer needs [45]. According to Babin [45] customers who seek hedonic shopping value have shown greater feelings of positive emotions, joy, and enjoyment. A number of research outcomes have discovered that impulsive buying behavior compensates many of hedonic needs such as surprise, novelty and fun [14,46] and it has been observed that impulse consumers have greater interest in enthusiasm, joy, delight, and amusement [28]. E-shoppers incline more towards hedonic contemplations than those of utilitarian for their buying; as compared to non-impulsive customers. Moreover, high-arousal feelings such as joy, excitement and pleasure are main drivers of impulse buying phenomenon [47]. Akram [11] also stated that online impulse buying is strongly influenced by hedonic shopping motivations.

Different aspects of Hedonic shopping have been the center of attention of researches of both online and offline shopping [48,49]. To buy for leisure intentions is the common factor that is found in both online and traditional styles of shopping. Concurring to Mathwick [50], it was found that online shopping has an experiential esteem that incorporates aesthetics and delight. Such experiential esteem could be considered the same as hedonic esteem [51].

Hedonic motivation is major predictors of online impulse buying and online shopping [11]. Successful online retailers often strive to induce a hedonic environment that acts as stimulator in igniting the instant shopping [52,53]. According to Hausman [14] online impulse buying can be seen as an esteemed shopping behavior rather than unplanned shopping in search of leisure and enjoyment. Feeling of pleasure is the reason for enthusiasm in hedonic consumers [51]. For hedonic shoppers, buying is more than acquiring the goods and accomplishment of tasks [45,54].

In the existing literature, there are many approaches to study hedonic dimensions in the topic of online buying. These studies have viewed hedonic values in different lenses. Some studies consider it as unidimensional construct [10,55,56] while some studies have taken into consideration the multidimensional construct in hedonic values [51,57]. This paper adapts later approach to measure the hedonic shopping inspirations of online shoppers. In the multidimensional construct, many scales have been established to measure the hedonic values. Following [51,57,58], this study employs five dimensions, namely, social, value, idea, relaxation and adventure, in studying hedonic shopping motivations of online shoppers. Although numerous constructs are available alongside aforementioned five, these five trends may be considered more appealing and relevant to such an economy where online buying trend is increasing fast [58].

3. Hypotheses Development

3.1. The Relationship between Scarcity and Online Impulse Buying

Scarcity can be described as consumers acknowledging of the limited availability of an item or benefit [22]. Earlier studies support buying limitation as instructive signals to the consumer [33,59]. A number of SC websites such as Groupon already use scarcity as a conditional instrument to enhance the manifestation of impulse buying behavior. There are two specific kinds of scarcity messages that

are being used mostly: Limited quantity (e.g., "Only 10 pieces available at this price) and limited time (e.g., "sale for just today"). Social commerce users may not possess sufficient time to look for alternate products. The value of product increases, when a product is difficult to purchase. This increased value triggers the customers to buy readily to satisfy their esteem. Furthermore, when a product is limited and rare, a consumer will only want it more [35]. Limited availability of product creates positive worth of the product in consumers' mind. Given a competitive environment with scarce resource, scarcity positively influences OIB behavior in Chinese SC environment, therefore the following hypothesis is proposed:

Hypotheses 1 (H1). *Scarcity positively influences OIB in Chinese social commerce environment.*

3.2. The Relationship between Serendipity and Online Impulse Buying Behavior

When online consumers discover serendipitous information, this information is very attractive and surprising for consumers. This serendipitous information will affect their experience, as they will believe that it has shopping value. Serendipitous information comes through surprising invention and impulse buying action is more likely to be performed than a planned search. According to Foster and Foster [60], serendipity includes unexpected worth and finding. It also includes a surprise or unusual endorsement [21]. Given the fact that serendipity is the unexpected/surprising situation, it can produce impromptu and spontaneous consumers to recognize shopping value differently from the way rational consumers do. This information increases experience of consumers through the "Aha!-moment" [40,61] which positively influences online impulse buying. Therefore, the following hypothesis is proposed;

Hypotheses 2 (H2). *Serendipity information positively influences OIB in Chinese social commerce environment.*

3.3. The Moderating Effect of Hedonic Dimensions

There are five hedonic shopping dimensions of online shopping (i.e., adventure shopping, social shopping, value shopping, relaxation shopping and idea shopping) that can moderate the relationship among serendipity, scarcity and online impulse buying.

3.3.1. Social Shopping

Evidence for the *social shopping* (*SS*) dimension is that buyers become socialized during shopping, they get the excitement of shopping with friends and family and connect with other people [57]. According to Dawon [62] the primary purpose for shoppers to go buying is the social connection while shopping. Spending time during shopping with family members and friends cherishes many consumers. Social recognition is also an acquired advantage through social interaction when people shop together at same place [57]. Nowadays it has become a common trend that netizens share their buying experience on online blogs and become socialized through this activity [15,51]. Notwithstanding the aforementioned view, some customers prefer online shopping because they want to escape social interaction, as mentioned by [58]. Contrary to [11,55,63], it was shown that hedonic shopping motivation is foremost in the case of buying online whereas two earlier studies found it significantly important in the case of traditional store shopping. This discussion let us postulate that hedonic consumers are likely to buy products and services through visiting click stores rather than brick. According to the above studies, we proposed the following hypothesis.

Hypotheses 3 (H3). *Social shopping positively moderates the relationship between the situational factors (scarcity, H3a; serendipity, H3b) and online impulse buying in Chinese social commerce environment. The relationship is stronger (weaker) at higher (lower) degrees of SS.*

3.3.2. Adventure Shopping

Adventure shopping (*AS*) and explore shopping are used side-by-side in marketing literature. It refers to a phenomenon that people come across new and appealing products while surfing and that add joy to their shopping experience [64]. Customers surf the products to satisfy their visual thirst, but it is not only the product which provides the consumers with sensory desire while shopping process [54]. Usage of computers is also a source of recreation for some users and creates the curiosity [65]. This perceived curiosity factor leads towards the feeling of adventure that satisfies the adventurous instinct of customers. Thus, we propose the following hypothesis:

Hypotheses 4 (H4). *Adventure/explore shopping positively moderates the relationship between the situational factors (scarcity, H4a; serendipity, H4b) and online impulse shopping in Chinese social commerce environment. The relationship is stronger (weaker) at higher (lower) degrees of AS.*

3.3.3. Value Shopping

The *value shopping* (*VS*) dimension of hedonic motivation states the enjoyment created when the people quest for bargains point, search for sales and discounts [45,64]. Similarly, Chandon [66] illustrate that consumers feel very delighted when they get a better discount because they think of themselves as clever buyers. Searching a good deal or price cut may express shoppers' pleasure from personal satisfaction. While shopping online, people are more likely to search discounts and bargains specifically with the vast usage of daily use websites and this course of action might affect consumers' online impulse buying and unplanned shopping. Therefore, the following hypothesis is presented in the light of above literature.

Hypotheses 5 (H5). *Value shopping positively moderates the relationship between the situational factors (scarcity, H5a; serendipity, H5b) and online impulse buying in Chinese social commerce environment. The relationship is stronger (weaker) at higher (lower) degrees of VS.*

3.3.4. Relaxation Shopping

Relaxation shopping is an important dimension of hedonic motivation which means shopping to release stress. It has a profound altering effect that positively influences the customers' mood [57]. Various buyers affirmed that they shop to diminish stress or to stop considering their personal issues. They see shopping as a way to unwind, progress a negative disposition, or fairly fulfill the requirements for getting away from reality. Logically, relaxation shopping has a positive relationship with impulse buying behavior [12]. Similarly, Ozen and Engizek [58] proved that relaxation shopping positively influences online impulse buying. Therefore, we propose the following hypothesis:

Hypotheses 6 (H6). *Relaxation shopping positively moderates the relationship between the situational factors (scarcity, H6a; serendipity, H6b) and online impulse buying in Chinese social commerce environment. The relationship is stronger (weaker) at higher (lower) degrees of RS.*

3.3.5. Idea Shopping

The last attribute of hedonic shopping motivations in our study is idea shopping. It alludes that individuals go shopping since they need to know and learn about new fashions and patterns [57]. Online shopping provides buyers with rich information about modern patterns, brands and products [51]. Consumers incline toward online shopping since they are able to discover, judge and get it around product launches, new patterns and brands [67].

Buying online gives customers the opportunity for acquiring information such as keyword advertisements, online product reviews, banner advertisements, sponsorships, cost evaluations, customer feedback comparison and other promotional events at whatever point, wherever, and whenever they require. This may lead them to buy impulsively [56]. Furthermore, online stores can be assessed directly by clicking on the hyperlinks [68]. Given the accessible online information about

market and products, it is plausible to believe that the more customers visit the websites, the higher is the chance to buy online impulsively [69]. Thus, we propose the following hypothesis:

Hypotheses 7 (H7). *Idea shopping positively moderates the relationship between the situational factors (scarcity, H7a; serendipity, H7b) and online impulse buying in Chinese social commerce environment. The relationship is stronger (weaker) at higher (lower) degrees of IS.*

4. Materials and Methods

The purpose of the present work is to inspect the influences of two situational factors (scarcity and serendipity) on OIB in Chinese SC setting. Particularly, the main purpose of this study is to obtain a better comprehension of the role of hedonic shopping motivations to moderate the relationship between situational factors and OIB in social commerce. Furthermore, we investigated which dimension of hedonic shopping motivation (social, adventure, value, relaxation, and idea) strongly moderates the relationship between situational factors and OIB. This manuscript intends to be an integrated structure model to illuminate the OIB of Chinese online shopper.

Since the target participants of our study were in China, the questionnaire originally developed in English, translated into Chinese, and then back-translated into English to ensure construct equivalence. The International Chinese Training Center, Beijing University of Posts and Telecommunication (ICTC, Ottawa, ON, Canada; BUPT, Beijing, China) recruited five students from the School of Economics and Management at master level and two senior doctoral students who were proficient in both languages. Then, two teachers were invited who were proficient in both Chinese and English to compare the original version with the translation. Finally, no difference was discovered in both versions. Before the final survey, we conducted a pilot study with 60 participants. This pilot study was to ensure that the procedures of the survey study were well communicated and understood, as well as to identify and refine potentially ambiguous measurement items in the research model.

Data were obtained through a paper questionnaire and an online survey. An online survey has several benefits. It has no geographical limits, surety regarding anonymity, convenience for both respondents and researcher, and is less costly. The questionnaire was dispatched on different popular websites. The online survey link was active for three weeks. The questionnaire was designed for those respondents who buy online through social media. An essential point was to get a response from only those respondents who have online buying experience on social media. We ensured this by adding introductory phrases of the aim of our study in the beginning of questionnaire. We made the objective of the study understandable for every reader by providing a simple explanation of social commerce and OIB to prepare them to respond to the questions. Moreover, respondents were asked about the last purchase that they made online by using a social commerce site. The online survey served our intention in a much better way as it could exclude those respondents who do not have online buying experience through social commerce. The questionnaire started with a screening question "Have you bought online through social commerce in the past six months?" If a respondent clicked "no," the survey would end. As a result, the sample only consisted of people who already had buying experience through social commerce sites in China. Not only this, to ensure that every respondent had online impulse buying experience through social commerce, we employed frequently used social media in China (such as WeChat, QQ, Sina Weibo) to float our questionnaire. Social media users are best suited for responding to our questions, as users of social media possess the social knowledge to support their online purchases. Both surveys were conducted between the time periods of June and July 2017. In order to motivate the respondents, we gave one packet of small gifts and red packet (红包) which cost 15 RMB.

An online survey has some disadvantages such as complexity issues of questions, data errors, scarceness of technology, and other technical issues. In order to mitigate all these issues, data were also collected through a paper questionnaire. Two metropolitan cities (Beijing and Shanghai, China) were targeted for data collection. The major part of sample was university students.

A total of 900 online shoppers were recruited for our study and 769 questionnaires were received back and 91 percent respondents declared they bought online by impulse. Few respondents returned partially filled questionnaire thus we subsequently eliminated their data. Finally, after discarding partially filled questionnaires and responses of 9% inexperienced respondents, we got sample of 671 respondents having experience of online buying through social commerce.

Table 1 depicts the demographic characteristics of samples. Female respondents are higher than males respectively (64.4% and 35.6%); therefore, it can be assumed that females were more likely to buy things spontaneously through social media. Most of the respondents' ages are between 26–30 years old (43.5%). Students were the major participants of this study (54.7%) and from education category, many participants have master's or bachelor's level (35.6% and 32.9% respectively). For further demographics information, see Table 1.

Table 1. Demographic description.

No.	Characteristics	Category	Frequency	%
1	AGE	18–25	120	17.9
		26–30	292	43.5
		31–35	132	19.7
		36–40	78	11.6
		above 40	49	7.3
2	Gender	Male	239	35.6
		Female	432	64.4
3	Education Level	Intermediate/High School	135	20.1
		Bachelors	221	32.9
		Masters	239	35.6
		Doctoral/PhD	32	4.8
		Other diplomas	44	6.6
4	Occupation	Student	367	54.7
		Employee	178	26.5
		Managerial level	87	13
		Business	39	5.8
5	Income	Below 10,000 RMB per month	134	19.8
		11,000–15,000 RMB per month	308	45.9
		16,000–20,000 RMB per month	189	28.1
		Above 20,000 RMB per month	40	6.2

4.1. Measurements of Exogenous and Endogenous Variables

We adopted measurement items used in previous studies for the key construct in our model: For Online impulse buying [7], serendipity [40], scarcity [34] and hedonic shopping dimensions [51,57]. Finally, a total number of 31 items were yielded (see Appendix A); online impulse buying (five items), serendipity (four items), scarcity (four items), social shopping (four items), adventure shopping (three items), value shopping (three items), relaxation shopping (three items) and idea shopping (four items). The five dimensions of hedonic shopping motivation were modified to fit the social commerce context [51,57].

4.2. Analysis Techniques

Two research softwares (SPSS 22 version) and (AMOS 22 version) were utilized for data entry and final analysis. Mean standard deviation and other descriptive statistics were used. Exploratory factor analysis (EFA) and Confirmatory factor analysis (CFA) were utilized to reduce the measurement items by recognizing the latent variables. Moreover, to measure the validity and reliability of each construct

item, Kaiser–Meyer–Olkin (KMO), internal consistency (Cronbach's Alpha) and Bartlett's test were employed. To test the measurement model, Structured Equation Modeling (SEM) technique was used.

4.3. Measurement Model

On the basis of the expected causal associations of diverse factors and their potential effects on (OIB) in the Chinese market, we validated the measures using structure equation modeling. Let η be the latent of online impulse buying behavior (OIB, unobservable), ϑ_1 be scarcity (SC), ϑ_2 be serendipity (SR), ϑ_3 be social shopping (SS), ϑ_4 be adventure shopping (AS), ϑ_5 be value shopping (VS), ϑ_6 be relaxation shopping (RS), ϑ_7 be idea shopping (IS), we hypothesize items of (observable) online impulse buying, y, to satisfy the following relation:

$$y = f(\vartheta_1, \vartheta_2, \vartheta_3, \vartheta_4, \vartheta_5, \vartheta_6, \vartheta_7) + \gamma = \eta + \gamma \tag{1}$$

where γ is an error term with $\sum = Cov(\gamma)$. See Figure 2. As all the exogenous variables, $\vartheta_1, \vartheta_2, \vartheta_3, \vartheta_4, \vartheta_5, \vartheta_6$ & ϑ_7 are hypothesized to lead the latent, η, of endogenous variable, y, positively, we assume:

$$\partial\eta/\partial\vartheta_i > 0 \quad i = 1, 2, 3, 4, 5, 6, 7.$$

Goodness of fit statistics: CMIN/df: 1.17, $P = 0.000$, CFI = 0.95, GFI = 0.94, AGFI = 0.93, NFI = 0.90, RMSEA = 0.04
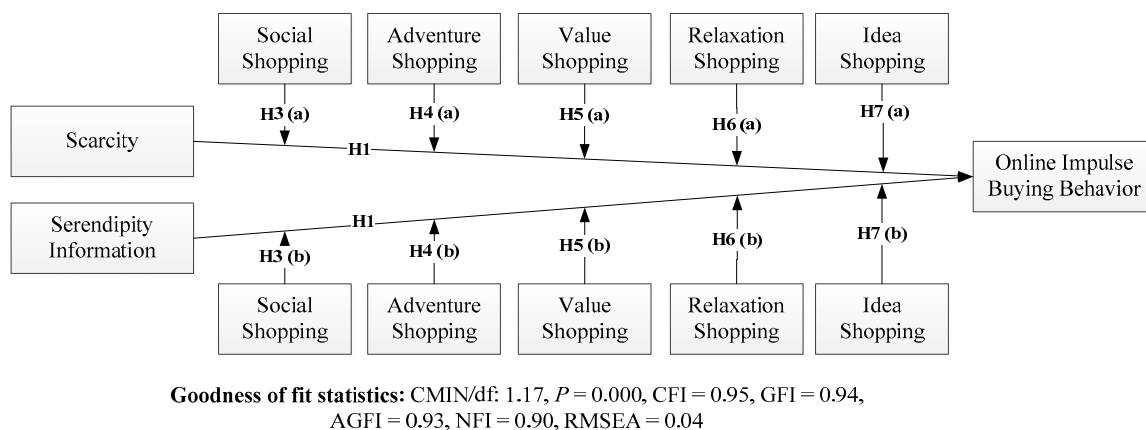
Figure 2. Research model and hypotheses.

A linear structure equation is used to represent Equation (1):

$$y = \tau\vartheta + \gamma \tag{2}$$

where $\vartheta = [\vartheta_1, \vartheta_2, \vartheta_3, \vartheta_4, \vartheta_5, \vartheta_6, \vartheta_7]$. The endogenous variable, y, is observable but the exogenous variables, $\vartheta_1, \vartheta_2, \vartheta_3, \vartheta_4, \vartheta_5, \vartheta_6$ & ϑ_7 are unobservable. As such n is the number of observed item of χ_i, $(\chi_{ij}, j = 1 \ldots n)$ are used to measure ϑ_1 for each $i = 1, 2, \ldots, n$. The measurement model for the vector of the exogenous latent variables is:

$$\chi = \wedge_\chi \vartheta + \delta \tag{3}$$

where $\chi = \begin{bmatrix} \chi_{1,1}, \chi_{1,2}, \chi_{1,3}, \chi_{1,4}, \chi_{2,1}\chi_{2,2}, \chi_{2,3}, \chi_{2,4}, \chi_{3,1}, \chi_{3,2}, \chi_{3,3}, \chi_{3,4}, \\ \chi_{4,1}, \chi_{4,2}, \chi_{4,3}, \chi_{4,4}, \chi_{5,1}, \chi_{5,2}, \chi_{5,3}, \chi_{6,1}, \chi_{6,2}, \chi_{6,3}, \chi_{6,4}, \\ \chi_{7,1}, \chi_{7,2}, \chi_{7,3} \end{bmatrix}$ and $\vartheta = [\vartheta_1, \vartheta_2, \vartheta_3, \vartheta_4, \vartheta_5, \vartheta_6, \vartheta_7]$.

The limitations were assessed by using the maximum probability estimation. We avoid discussing the details. For further endeavors, please refer to Liao and Wong [70] and the references therein for more information.

In this manuscript, first, authors applied EFA to inspect the possible primary factor structure of all the clarifications in this study. After finalizing the number of factors through using EFA, we applied confirmatory factor analysis (CFA) to classify the exogenous and endogenous factors and to test the study construct model and proposed hypotheses (Figure 2), which involve linear structural equations (Equations (1) and (2)) and measurements of the exogenous latent variables (Equation (3)). The correlation test is also employed to acquire the results based on all items of every variable. These results are used in path analysis as input. By using CFA, we critically examined the structure model in terms of convergent validity, reliability, and unidimensionality of the scales [71]. The degree to which the items are powerfully related with each other, and represent one single factor is called unidimensionality, which is a compulsory statute for constructing validity and reliability analysis [72]. The advantage of employing the CFA, as opposed to an EFA, is that this is the common and approachable test for factor loadings to assess the significance of statics. When examining the unidimensionality of each variable, the correlation analysis and reliability test can be assimilated.

5. Results and Findings

5.1. EFA and CFA

First, we applied EFA to assess the possible primary factor structure of all the clarifications in this study. After finalizing the number of factors through using EFA, we applied (CFA) to classify the exogenous and endogenous factors and to assess the research model, hypotheses (Figure 2) and validity analysis. Few items are reduced to make the data more representable and to improve goodness of fit model by using EFA and CFA. A total of eight latent variables are being explored i.e., two independent (ST, SR), five moderators (SS, AS, VS, IS, RS), and one dependent variable (OIB) by using SPSS version 22. Two items (OIB2 and SR4) were eliminated to improve the reliability (i.e., Composite reliability and Cronbach's alpha), discriminant and convergent validity of the variables.

During this process, all factors were involved as exogenous variables in the proposed hypothesized framework utilizing analysis of a moment structure AMOS 22. By utilizing EFA we discover factor structure. Furthermore, CFA analysis was employed to confirm the factor structure that we extracted from EFA to improve overall model fitness. All values of CFA analysis meet the threshold value which indicates that CMIN/df = 2.19, $p < 0.000$, GFI = 0.91, CFI = 0.93, AGFI = 0.90, NFI = 0.89, RMSEA valued 0.006 and RMR 0.06. In short, all values are satisfactory and outstanding model fit indices.

5.2. Reliability and Convergent Validity

To test the convergent validity and reliability, three metrics were used: (1) Cronbach's alpha; (2) composite reliability (CR) and (3) average variance extracted (AVE). As illustrated in Table 2, all values of AVE were acceptable, at 0.50 or above. Thus, the measurement items that we used converged on the same latent construct. Furthermore, as was suggested by Nunnally [73], all values of Cronbach's alpha were greater than 0.70, whilst the CR for all constructs were also above 0.70. This shows internal consistency among our measurement items. Additionally, according to Hair [74] convergent validity is evaluated by three conditions: (a) All measurement item loadings should be higher than 0.70 (b) Cronbach's alpha should be greater than 0.70 and (c) CR of each variable should be more than 0.80. These results indicated that all constructs were having adequate reliability scores and supporting the convergent validity of the measurement.

Table 2. Convergent validity and exploratory factor analysis.

Construct	Item	Loadings	Cronbach's Alpha	Composite Reliability	AVE	KMO
Online Impulse Buying	OIB1	0.876	0.965	0.941	0.873	0.76
	OIB2	0.454				
	OIB3	0.871				
	OIB4	0.875				
	OIB5	0.861				
Serendipity	SR1	0.871	0.887	0.927	0.765	0.78
	SR2	0.879				
	SR3	0.897				
	SR4	0.591				
Scarcity	ST1	0.839	0.906	0.911	0.781	0.81
	ST2	0.811				
	ST3	0.861				
	ST4	0.754				
Social Shopping	SS1	0.879	0.865	0.812	0.878	0.75
	SS2	0.897				
	SS3	0.876				
	SS4	0.787				
Adventure Shopping	AS1	0.871	0.86	0.933	0.776	0 77
	AS2	0.788				
	AS3	0.872				
Value Shopping	VS1	0.912	0.923	0.876	0.798	0.71
	VS2	0.872				
	VS3	0.866				
Idea Shopping	IS1	0.769	0.912	0.865	0.821	0.84
	IS2	0.814				
	IS3	0.946				
	IS4	0.866				
Relaxation Shopping	RS1	0.911	0.876	0.881	0.723	0.79
	RS2	0.814				
	RS3	0.855				

Notes: Two items were eliminated due to poor loading i.e., OIB2 and SR4.

5.3. Discriminant Validity

To assess the discriminant validity, we used the approaches of Fronell and Larcker [75]. The square root of (AVE) between a construct and its measures should be larger than the correlations between the construct and any other construct in the research model. We found that in each case the square root of AVE for each construct was higher than the intercorrelations with another construct (see Table 3). To further test for multicollinearity, we computed variance inflation factors (VIFs). These range between 2 and 5, suggesting multicollinearity is not a big issue in this study (Aiken and West, 1991). The Kaiser–Meyer–Olkin (KMO) test was applied to estimate the sampling adequacy. All values of KMO came out to be greater than 0.50 (see Table 2). Overall, there was strong empirical support for reliability and validity of the constructs in our hypothesized model (Figure 2).

5.4. Common Bias Method

We conducted several tests to examine the potential threat of common method bias. First, we performed the very famous and commonly used Harman's single-factor test by inserting all of the constructs into a principal components factors analysis [76]. Eight factors were produced, the first accounted for just 22% of the variance, suggesting that there is unlikely to be significant common method bias. Next following the recommendation of Kock [77], we carried out a full collinearity test and all VIFs resulting from the full collinearity test were lower than 3.3. Based on above tests, the results suggested that the common method bias is not a serious issue in our study.

5.5. Results of Hypothesis Testing

　　In order to analyze the measurement model and to test the propose hypotheses SEM technique was employed. The results of the effects of SR, ST, SS, AS, VS, IS, RS on OIB based on the structure model are presented in Table 4. The results showed good fit of the model with data CMIN/DF = 1.17, $p < 0.000$, RMSEA = 0.04, CFI = 0.95, GFI = 0.94, AGFI = 0.93, NFI = 0.90, RMR = 0.04. Tables 4 and 5 report the results of proposed hypotheses. From Table 5 we find that the first main effect path from scarcity to online impulse buying with $\beta = 0.319$ significant ($p < 0.001$; $t_{\text{-value}} = 19.39$) indicating *H1* is supported such that ST has a positive and significant effect on OIB and the overall model is significant ($R^2 = 0.102$, $F_{\text{-value}} = 37.48$, $p < 0.01$). The second path serendipity to online impulse buying with $\beta = 0.376$ significant ($p < 0.05$; $t_{\text{-value}} = 13.21$) resulting *H1* is supported such that SR has positive influence on OIB. This model is also significant ($R^2 = 0.490$, $F_{\text{-value}} = 16.54$, $p < 0.01$). Additionally, the effect size was employed by examining the f^2 value suggested by [78]. It is described as "the degree to which phenomenon is present in the population." Cohen suggested that three standard values for f^2 0.02, 0.15 and 0.35 are the small effect, medium and large effect size. According to the results, scarcity was found a medium effect with $f^2 = 0.1283$ whereas serendipity was found large effect size with $f^2 = 0.4543$.

Table 3. Discriminant validity.

Constructs	Mean	SD	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Online impulse buying	4.89	0.92	0.934	0.343 **	0.234 *	0.343 **	0.312 ***	0.287 **	0.542 **	0.316 **
(2) Serendipity	4.11	1.21		0.874	0.432 ***	0.543 **	0.511 **	0.491 *	0.434 ***	0.432 ***
(3) Scarcity	4.33	1.33			0.883	0.319 **	0.439 *	0.276 ***	0.329 **	0.462 ***
(4) Social shopping	3.98	0.43				0.937	0.543 ***	0.323 **	0.432 *	0.349 **
(5) Adventure shopping	4.34	0.98					0.880	0.199 *	0.297 **	0.311 **
(6) Value shopping	4.33	0.55						0.893	0.124 *	0.491 ***
(7) Idea Shopping	4.11	1.34							0.906	0.312 **
(8) Relaxation shopping	4.62	1.24								0.850

Notes: Italic diagonal values are the square root of average variance extracted (AVE) which should be higher than diagonal values of the correlation coefficient to satisfy discriminant validity; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Table 4. Results of model fit.

Fit Indices	CMIN/df	*p*-Value	RMSEA	CFI	GFI	AGFI	NFI
Recommended value	<3	$p < 0.05$	<0.08	>0.90	>0.90	>0.80	>0.90
Measurement model	2.19	0.001	0.07	0.93	0.91	0.90	0.89
Structure model	1.17	0.000	0.04	0.95	0.94	0.93	0.90

Table 5. Moderation analysis between serendipity and online impulse buying.

	Moderating Variables														
	Social Shopping			Adventure Shopping			Value Shopping			Relaxation Shopping			Idea Shopping		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Items	SR	SS	SR × SS	SR	AS	SR × AS	SR	VS	SR × VS	SR	RS	SR × RS	SR	IS	SR × IS
β	0.376 [b]	0.321 [b]	0.231 [c]	0.376 [c]	0.211 [c]	0.465 [b]	0.376 [b]	0.221 [b]	0.433 +	0.376 [c]	0.323 [b]	0.432 [c]	0.376 [a]	0.231 [c]	0.213 [c]
t-value	13.21	10.32	7.12	13.21	2.721	1.323	13.21	2.603	1.984	13.21	12.32	1.911	13.21	05.121	08.563
F-value	16.54 [b]	60.53 [b]	40.60 [c]	16.54 [b]	13.22 [c]	17.43 [c]	16.54 [b]	12.36 [c]	08.66 +	16.54 [b]	05.99 [b]	17.10 [c]	16.54 [b]	34.98 [c]	16.91 [c]
R^2	0.490	0.510	0.513	0.490	0.235	0.240	0.490	0.512	0.518	0.490	0.436	0.401	0.490	0.345	0.356
Adjusted R^2	0.196	0.210	0.511	0.196	0.331	0.339	0.196	0.177	0.308	0.196	0.432	0.116	0.196	0.312	0.265
ΔR^2	0.490 [c]	0.020 [b]	0.003 [c]	0.490 [c]	0.255 [c]	0.005 [c]	0.490 [c]	0.022 [c]	0.006 +	0.490 [c]	0.054 [b]	0.035 [b]	0.490 [c]	0.145 [b]	0.011 [c]

Notes: Dependent Variable: Online impulse buying; *F*-value is for overall models. + $p < 0.1$; [a] $p < 0.05$; [b] $p < 0.01$; [c] $p < 0.001$.

5.6. Moderating Effects of Hedonic Dimensions

To examine the moderating role of hedonic dimensions (e.g., social, adventure, value, idea and relaxation shopping), we followed three steps during the hierarchical moderation analysis. Firstly, the endogenous factor OIB is regressed on the scarcity and serendipity as the exogenous variables separately. This is followed by the second regression step of OIB with the moderator variables, hedonic dimensions. In the last step, an interaction term obtained by multiplying every exogenous variable with moderator variables is also entered. In order to avoid the issue of multicollinearity stemming from correlation, their variables have their data mean-centered [79].

H3a and *H3b* examined the moderating effects of the social shopping between situational factors (i.e., scarcity and serendipity) and online impulse buying. The main effect of social shopping has positive and significant relation with online impulse buying (β = 0.321, F_{-value} = 60.53, p < 0.01). The effect of SS was found significant moderating interaction effect of (scarcity $\times$ SS: β = 0.498, F_{-value} = 09.43, ΔR^2 = 0.075, p < 0.01) on OIB. SS also played a positive and significant moderating interaction effect of (serendipity $\times$ SS: β = 0.231, F_{-value} = 40.60, ΔR^2 = 0.003, p < 0.001) on OIB. Thus, *H3a,b* were accepted. According to Liao and Wang [80], the last column of every model (e.g., Model 3) significant R^2 change shows the substantial moderating impact of every moderator factor. The main effect of adventure shopping is positively related to OIB (β = 0.211, F_{-value} = 13.22, p < 0.001). As was found a significant moderating interaction effect of (scarcity $\times$ AS: β = 0.232, F_{-value} = 11.87, ΔR^2 = 0.039, p < 0.01); (serendipity $\times$ AS: β = 0.465, F_{-value} = 17.43, ΔR^2 = 0.005, p < 0.01) on OIB, therefore, *H4a,b* were supported. *H5a,b* stating the moderating role of value shopping on the relationship between ST and OIB; SR and OIB were tested by hierarchical regression analysis. The main effect of VS on OIB was significant (β = 0.221, F_{-value} = 12.36, p < 0.001). VS positively and significantly played a moderating role of (scarcity $\times$ VS: β = 0.311, F_{-value} = 07.87, ΔR^2 = 0.076, p < 0.001) while insignificant with (serendipity $\times$ VS) on OIB. Thus, *H5a* was accepted, but *H5B* was not. The main effect of relaxation shopping on OIB was found positive and significant with (β = 0.323, F_{-value} = 05.99, p < 0.01). Surprisingly, RS showed significantly interaction effect of both relationships (scarcity $\times$ RS: β = 0.155, F_{-value} = 10.32, ΔR^2 = 0.007, p < 0.001); (serendipity $\times$ RS: β = 0.432, F_{-value} = 17.10, ΔR^2 = 0.035, p < 0.01) on OIB, which means scarcity and relaxation shopping both explained additional 7% of variance in OIB and serendipity and RS both explained additional 35 percent of variance in OIB. Idea shopping was found significant effect on OIB (β = 0.231, F_{-value} = 34.98, p < 0.001). Interestingly, IS was found positive and significant moderation effect of (serendipity $\times$ IS: β = 0.213, F_{-value} = 16.91, ΔR^2 = 0.011, p < 0.001) on OIB, while insignificant moderation effect was found with (scarcity $\times$ IS) on OIB. Thus, *H6a* was unsupported and *H6b* was supported. The results of the hierarchical moderation analysis are shown in Tables 5 and 6. The Interaction plots *of H3a, H3b, H4a, H4b, H5a, H6a, H6b, H7b* are presented in Figures A1–A8 in Appendix B.

Table 6. Moderation analysis between scarcity and online impulse buying.

	Moderating Variables														
	Social Shopping			Adventure Shopping			Value Shopping			Relaxation Shopping			Idea Shopping		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Items	ST	SS	ST $\times$ SS	ST	AS	ST $\times$ AS	ST	VS	ST $\times$ VS	ST	RS	ST $\times$ RS	ST	IS	ST $\times$ IS
β	0.319 [c]	0.321b	0.498 [b]	0.319 [c]	0.211 [c]	0.232 [b]	0.319 [c]	0.221 [b]	0.311 [c]	0.319 [c]	0.323 [b]	0.155 [c]	0.319c	0.231 [c]	0.321 +
t-value	19.39	10.32	12.76	19.39	2.721	1.733	19.39	2.603	02.12	19.39	12.32	4.844	19.39	05.121	22.32
F-value	37.48 [b]	60.53b	09.43c	37.48 [b]	13.22 [c]	11.87 [c]	37.48 [b]	12.36 [c]	07.87 [b]	37.48 [b]	05.99 [b]	10.32 [b]	37.48 [b]	34.98 [c]	4.232 +
R^2	0.102	0.510	0.435	0.102	0.235	0.196	0.102	0.512	0.436	0.102	0.436	0.429	0.102	0.245	0.196
Adjusted R^2	0.196	0.210	0.2976	0.196	0.331	0.342	0.196	0.177	0.219	0.196	0.432	0.123	0.196	0.312	0.321
ΔR^2	0.102 [c]	0.020 [b]	0.075 [b]	0.102 [c]	0.255 [c]	0.039 [c]	0.102 [c]	0.022 [c]	0.076 [c]	0.102 [c]	0.054 [b]	0.007 [c]	0.102 [c]	0.145 [b]	0.049 +

Notes: Dependent Variable: Online Impulse Buying; *F*-value are for overall models. + $p < 0.1$; [a] $p < 0.05$; [b] $p < 0.01$; [c] $p < 0.000$.

6. Discussion and Conclusions

The purpose of this study is to investigate the impact of two situational factors, scarcity and serendipity, on OIB. Furthermore, five moderating factors of dimensions of hedonic motivations examine the relationship between scarcity, serendipity, and OIB. The findings of this study support the Chinese consumers for buying an unplanned product online because statistics recommend that our construct model fits the data very well. Furthermore, we discuss the conclusion of every hypothesis one by one in the following.

H1: We found that scarcity has a direct influence on online impulse buying in the social commerce environment. Scarcity was found to be a strong predictor of OIB. This finding is similar to that of a previous study [81]. In other words, when a consumer receives a scarcity message regarding a particular product in social commerce environment, his or her online impulse buying intrinsic is likely to let him or her to purchase that online buying as an effective way to stimulate enjoyment and fun. The results can be described by few psychological theories such as reactance theory [35] commodity theory [34], naïve economic theory [33] and a theory of need for uniqueness [36].

H2: As mentioned, serendipity has a positive and significant effect on OIB in the Chinese social commerce environment. This result is similar to the result of [81]. When consumers received serendipitous information in the social commerce environment, they are more likely to buy things impulsively online. Serendipity is an unpredicted situation; it can create impromptu and spontaneous consumers to perceive shopping value differently from the way rational consumers do. Online impulse buying in social commerce environment works as a simulator of fun. This study is slightly similar to the argument of [17,81] and to the study by Zhang [21], which show the associations between serendipity and OIB, enjoyment or happiness.

H3a,b: As mentioned in the literature review, few scholars, for example, Refs. [11,15,51] have demonstrated that social shopping has significant influence on OIB. The current study found the same result that OIB is significantly and positively influenced by social shopping. That is an important dimension of hedonic motivation. The abovementioned results mentioned that social sopping significantly plays a moderating role between scarcity, serendipity and online impulse buying in social commerce environment.

H4a,b: This study found that OIB is significantly influenced by adventure shopping. As is mentioned in the literature review, Webster [65] argued that adventure shopping is a strong influential factor while shopping online. Aforesaid results indicated that adventure shopping positively moderates the relationship between scarcity, serendipity, and OIB (see Tables 5 and 6).

H5a,b: Our results show that value shopping significantly influences OIB. Chandon [66] found that consumers feel happy and delighted when they get a good discount and they regard themselves as smart shoppers. Ozen and Engizek [58] confirm our result that VS positively influences OIB. Moreover, value shopping significantly moderates the relationship between scarcity and OIB, but surprisingly VS does not moderate the relationship between serendipity and OIB.

H6a,b: This study shows that OIB is positively and significantly influenced by RS. Aforementioned studies, for example, [12,58] demonstrate that RS is the major influential factor to generate OIB. However, the findings of the present study show that RS significantly moderates the relationship between scarcity, serendipity, and OIB (see Tables 5 and 6).

H7a,b: as is mentioned in above literature, many scholars, for example, Refs. [56–58,67] have considered IS as important antecedents of OIB in the retail market. This study yields the same finding that IS positively and significantly influences OIB in Chinese retail market. Furthermore, IS significantly moderates the relationship between serendipity and OIB but not between scarcity and OIB.

Our results have portrayed the fact that development of e-commerce in China has built a huge potential for online trading. This e-commerce has shifted towards social commerce now. The basic difference between e-commerce and social commerce is that former is more towards the product-oriented environment and later is more towards customer-centered and sustainability oriented. Social media, which started with the advent of web 2.0, is built on the concept of harnessing collective

intelligence. With the development of social commerce, people have easy access to socially available knowledge and they are able to make more informed and accurate buying decisions. This aspect has the potential to make the retailers and manufacturers more responsible. For example, our study has elaborated that variable of idea shopping is positively related with OIB. Idea shopping is linked with learning new trends worldwide. With the Idea shopping, people demonstrate their newly acquired knowledge by preferring the sustainable products, and this knowledge is spread through social commerce. This thing has forced the manufacturers to go towards green manufacturing and green supply chain management. Similarly are the cases with other factors of buying that our study has discussed like social, adventure, value and relaxation shopping. All these factors are also positively related to OIB. Social buying through social commerce is motivating the consumers to value sustainable attributes and make those attributes a priority. Value shopping is enabling the consumers to see that sustainably-sourced goods do not only reflect their values, but also provide better value. Relaxation shopping makes it sure that consumption of product should not only make the user of product relaxed by disturbing the whole ecology that is meant for all. Social media has made a strong link of these factors with sustainable consumer buying behavior.

7. Implications

Based on above results, the current study has the following theoretical and practical implications. Theoretically, this study has focused on unplanned and irrational consumption behavior in the SC environment by adopting five dimensions of hedonic shopping values and two situational factors (scarcity and serendipity). Many existing literatures on SC focused on planned and rational consumption behavior [82,83]; yet, irrational and unplanned consumption behavior can also take place in the SC environment, due to the convenience and simplicity of searching, exploring and paying. Therefore, the study has broadened and strengthened the existing knowledge in the field of OIB, hedonic shopping values and related studies, by identifying and covering the gap between previous studies.

Increasing trend in online impulse buying through social commerce can be seen with positive as well as negative views. Opponents may argue that increasing efforts to enhance online impulse buying is shifting an upward trend in manufacturing levels due to increased demand for products. This may create environmental hazardous. They also argue that shifting the shopping trend from physical stores to online portals is creating the risks of unemployment. Furthermore, increased online shopping is linked with the increased level of logistics and transportations as the customer may choose a product available at a distant place that is transported through express services in China. Opponents also link this aspect with the environmental concerns.

Proponents of online impulse buying through social commerce view it in a contrasting and progressive manner. They argue that online impulse buying shifts upward trend towards the economic growth of the country. A developed economy can curtail environmental issues more efficiently. Choi [84] has demonstrated that, in China, environmental improvements occur after a certain level of income is reached. Thus, at the macroeconomic level, policymakers should plan to devise the strategies which could utilize the income from growing online businesses to developing sustainable practices in China. That is an advisable practical implication of our study also. Furthermore, Government should provide subsidies and ease in the operating environment to those e-commerce companies which are involved in sustainable activities. Present study urges the marketers and managers of social commerce to spread the utilization of the social commerce platforms to create the awareness among netizens about the sustainability. Increasing trends in online impulse buying through social commerce has positive sociological and ecological impacts also. Establishing such portals where netizens, corporates, and regulators may interact creates an ecosystem that fosters the sustainable cooperation in the society. It may also trigger sustainable technological innovation. Social commerce platforms must be used to mold the consumer behavior towards sustainability, green products, product design, and green branding, labeling and advertising and other sustainable practices of firms. Social commerce markets

should not ignore the fact that their job is to create the sound image of the firm in prospective customers' minds. Firms' sustainable activities practices are advantageous in improving firm performance as advocated by Choi [85] by building a positive image of the firm.

We adopted five dimensions of hedonic shopping value (social shopping, adventure shopping, value shopping, relaxation shopping and idea shopping) in SC environments to assess their moderating effects in the relationship between OIB and two situational factors (scarcity and serendipity). Although five dimensions of hedonic shopping value are the signature strengths attracting online consumers to buy spontaneously, some researchers have investigated the impact of situational variables and five dimensions of hedonic shopping value on OIB in Chinese SC environment. Furthermore, previously established researches examine the direct influence of hedonic shopping value on OIB [11,58], but this study distinctively explains the influence of five dimensions of hedonic shopping value on the effectiveness of the online retail strategies by assessing the moderating role of hedonic shopping value.

This study has a number of practical implications for Chinese online retail managers as well as web and application developers in SC environment. In the perspective of serendipity, online retailers should increase the range of new products and develop consumptions based recommendation systems to allow consumers to search the new products and services that interest them. In order to increase the impulsive buyers, web and application developers must provide unexpected and consumers' interest-related information. Unexpected and unusual information/situation leads to unplanned behavior. Online retailers also focus on the information discovering the process that consumers adopt in social commerce environment. In the perspective of scarcity, in a social websites or applications, only images and texts on display can inform shoppers about limited time and quantity of purchasing products and services. Therefore, online retailers should arrange and design the images or texts to express scarcity message clearly at a glance. Additionally, online retailers should extend the strategies of scarcity message to get attention like sending emails and setting alarms.

The moderating effect of five dimensions of hedonic shopping value on the relationship between two situational factors (scarcity, serendipity) and OIB, helps the online retailer and web developer to devise marketing strategies accordingly and has an effect on the consumer buying decision process. In SC, application and website should be designed to stimulate online shoppers' hedonic shopping value in order to enhance the OIB. The current SC focuses more on discounted price. To stimulate consumers' impulse behavior, it is important to make consumers feel the fun and joy of shopping. For example, the advertisement with faded words, funny ads, vivid pictures of products and its functions can be helpful. This enables consumers to be fully engaged in the shopping, and they feel the time is too short to buy products impulsively.

In order to enhance the OIB, Chinese e-tailers should improve the dimensions of hedonic shopping value with regard to its website. The design of the website should provide enjoyment to online consumers, and make them feel relaxed and very special. In SC environment, consumers are willing to buy things impulsively when they find sales and discounts on products. According to Park and Lennon [86], impulsive consumers are likely to be flexible and open to unexpected or sudden buying ideas. When consumers encounter superior discount or bargains, they do not feel the urge to buy those products. This situation conveys that price competition is an important variable for Chinese online consumers, which should not be ignored while making strategies. In order to gain the competitive advantages, online retailers should develop pricing strategies according to their competitors and adopt price changes accordingly.

In SC environment e-tailer should provide the opportunity of discussion to their online shoppers with other shoppers who are buying things at the same website and time as them, therefore they may be socialized in SC. This way, online consumers get advice about products while making online purchases. According to our results, social shopping strongly influences OIB in Chinese SC environment. When they socialize with each other, they buy goods without thinking. Another interesting finding derived from the results is that fashion oriented products and new brands induce the online consumers to buy things impulsively. We could say that Chinese online consumers are more

conscious about fashion and new trends on the Internet. According to Phau and Lo [87] online impulse buying is positively influenced by fashion innovativeness. This finding is also supported in China. Therefore, e-tailers and web developers in Chinese SC must provide fashion oriented products and new brands to increase the online impulse buying.

Boundaries and Future Opportunities

The present study has some limitations. First, data were collected from two metropolitan cities of China; future endeavors may consider smaller cities and include more cities to generalize the results and future scholars could increase the sample size. Second, the convenience sampling approach was utilized for data gathering; the results can be made clearer and justified by using other sampling techniques e.g., random and quota sampling. Non-probability method sample may not represent the general Chinese consumers. The third limitation is that although this study used five dimensions of hedonic shopping value with two situational factors scarcity and serendipity, other factors (e.g., utilitarian, website quality, normative social influence and informational social influence) and theories (e.g., cognitive emotion theory, flow theory, S-O-R model and TAM model) could also be used and may yield more valuable outcomes in SC. The present research can be extended by including behavior-based drivers, such as personal traits, culture dimensions, and motivational factors to understand OIB. Furthermore, research could be extended by combining both quantitative and qualitative approaches and by incorporating more moderating and mediating variables considered. Finally, future research may also be conducted on other developing and developed countries to generalize outcomes of the present study. A stream of research that may aim at seeking to encourage pro-environmental consumer behaviors and production should be established. Although a rich literature that focuses different dimensions of marketing knowledge and sustainability aspects separately is available, need is to converge these streams to enhance the insights for sustainability through social marketing.

Author Contributions: Umair Akram presented the idea and wrote the first draft of this paper. Muhammad Kaleem Khan revised the first draft. Peng Hui was involved in the literature review section and data collection along with Chen Yan and Muhammad Kaleem Khan. Data analysis was done by the joint effort of Umair Akram and Zubair Akram. Finally, all authors revised, discussed and approved the manuscript.

Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

Constructs and Indicators (Survey Questionnaire)

Online Impulse Buying (OIB)

- My purchase was spontaneous
- My purchase was unplanned
- I did not intend to do this purchase before this shopping trip.
- Before visiting the site, I did not have the intention to do this purchase.
- I could not resist to do this purchase at the site

Scarcity (ST)

- When I do shopping in social commerce, I thought deadline
- When I do shopping in social commerce, I worried about limited time
- When I do shopping in social commerce, I concerned about limited quantity
- When I do shopping in social commerce, I was anxious about sold out sign

Serendipity (SR)

- I obtained unexpected insights when do the shopping in social commerce
- I unexpectedly discovered by chance what I want to buy before when do the shopping in social commerce
- I found things that surprised me when do the shopping in social commerce
- I was able to see the ordinary in new ways when do the shopping in social commerce

Social Shopping (SS)

- I shop online in social commerce to develop friendship with others internet shoppers
- I shop online in social commerce to extend personal relationship
- I shop online in social commerce to share experience with others
- I shop online in social commerce to exchange information with friends

Value Shopping (VS)

- For the most part, I shop online in social commerce when there are sales
- I enjoy looking for discounts when I shop online in social commerce
- I enjoy hunting for bargains when I shop online in social commerce

Adventure Shopping (AS)

- To me, online shopping in social commerce is an adventure
- Online shopping in social commerce is a thrill to me
- Online shopping in social commerce makes me feel like I am in my own universe

Idea Shopping (IS)

- I shop online in social commerce to keep up with the trends
- I shop online social commerce to keep up with the new fashion
- I shop online social commerce to see what new products are available
- I shop online social commerce to experience new trends

Relaxation Shopping (RS)

- When I am in a down mood, I shop online social commerce to make me feel better
- To me, online shopping social commerce is a way to relieve stress
- I shop online social commerce when I want to treat myself to something special

Appendix B
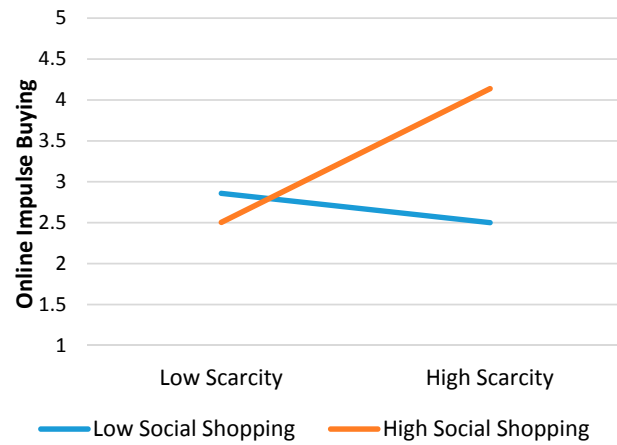
Interaction Plots of Moderating Variables

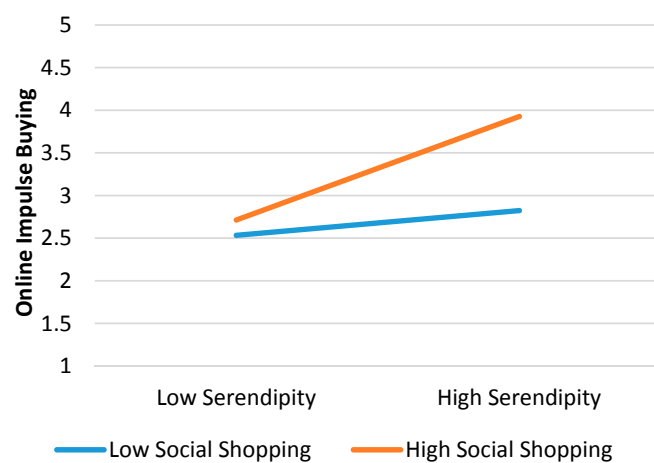**Figure A1.** Interaction plot of social shopping *H3a*.

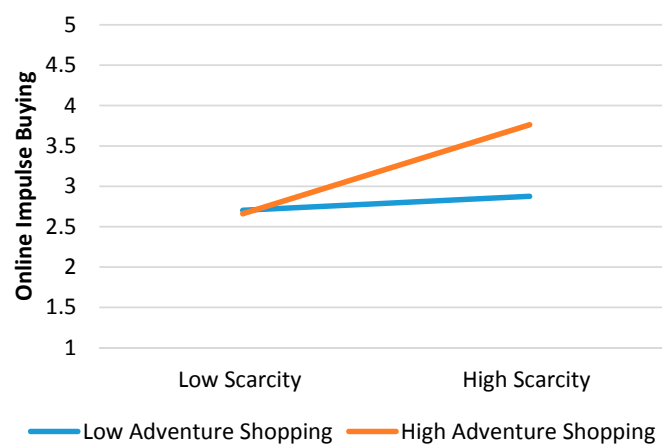**Figure A2.** Interaction plot of social shopping *H3b*.

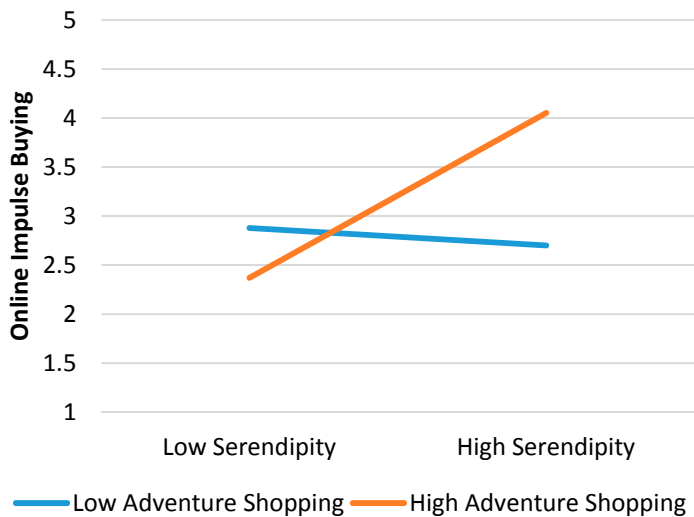**Figure A3.** Interaction plot of adventure shopping *H4a*.

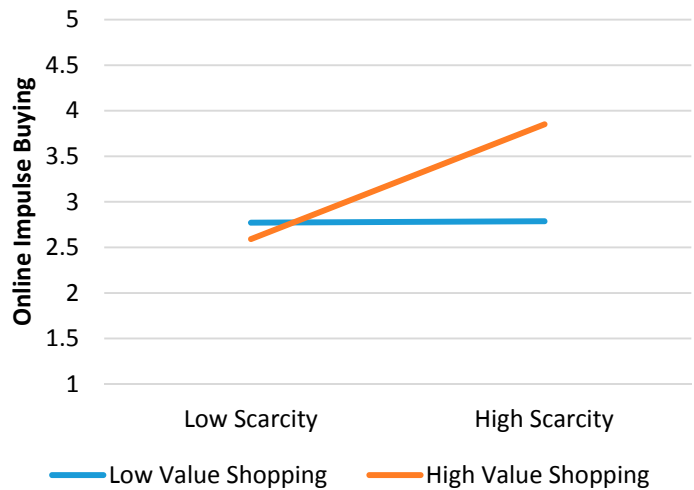**Figure A4.** Interaction plot of adventure shopping *H4b*.

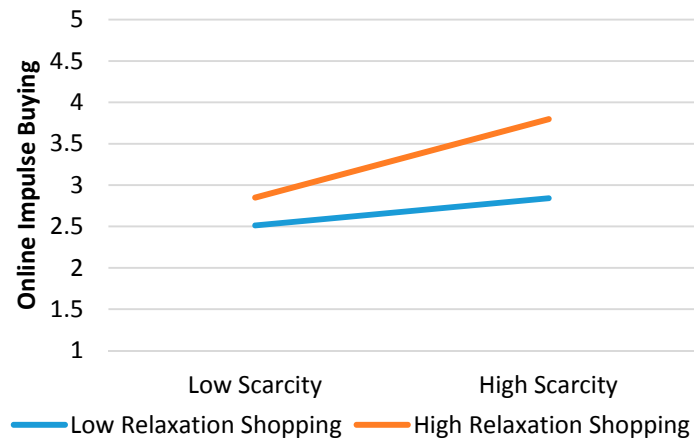**Figure A5.** Interaction plot of value shopping *H5a*.

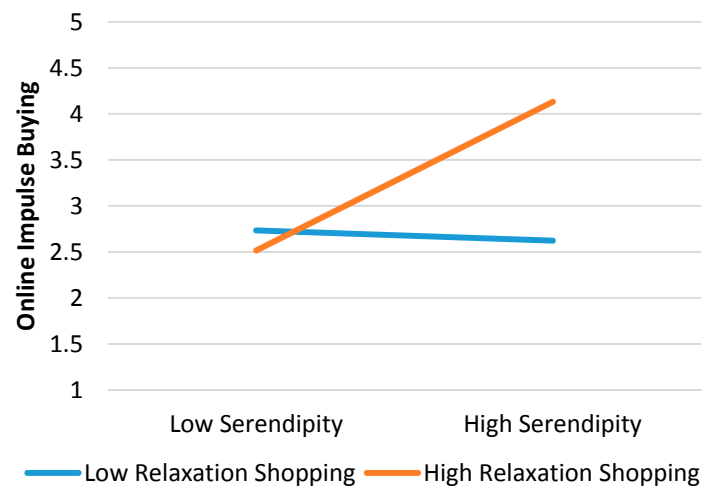**Figure A6.** Interaction plot of relaxation shopping *H6a*.

Figure A7. Interaction plot of relaxation shopping *H6b*.
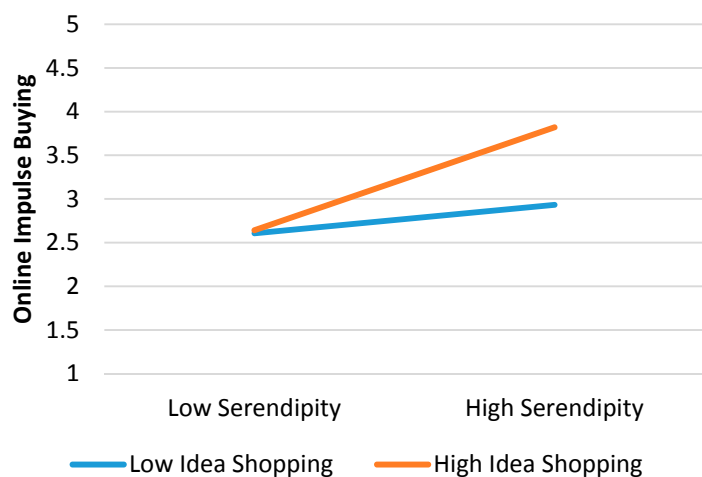
Figure A8. Interaction plot of idea shopping *H7b*.

References

1. Jung, L.S. A Research on the Relationship of Web-Site Usability and Social Commerce. *Adv. Sci. Technol. Lett.* **2014**, *46*, 128–132.
2. Wigand, R.T.; Benjamin, R.I.; Birkland, J. Web 2.0 and beyond: Implications for electronic commerce. In Proceedings of the 10th International Conference on Electronic Commerce, Innsbruck, Austria, 19–22 August 2008; ACM Press: New York, NY, USA, 2008.
3. Anderson, M.; Sims, J.; Price, J.; Brusa, J. Turning "Like" to "Buy" Social Media Emerges as a Commerce Channel, Booz & Company. 2011. Available online: http://boletines.prisadigital.com/Like_to_Buy.pdf (accessed on 29 November 2017).
4. Linda, S.L.L. Social Commerce—E-Commerce in Social Media Context. *World Acad. Sci. Eng. Technol.* **2010**, *72*, 39–44.
5. Kim, Y.K. Consumer value: An application to mall and internet shopping. *Int. J. Retail Distrib. Manag.* **2002**, *30*, 595–602. [CrossRef]
6. LaRose, R. On the negative effects of e-commerce: A socio cognitive exploration of unregulated on-line buying. *J. Comput. Med. Commun.* **2001**, *6*. [CrossRef]
7. Verhagen, T.; van Dolen, W. The influence of online store beliefs on consumer online impulse buying: A model and empirical application. *Inf. Manag.* **2011**, *48*, 320–327. [CrossRef]

8. Dawson, S.; Kim, M. External and internal trigger cues of impulse buying online. *Direct Mark. Int. J.* **2009**, *3*, 20–34. [CrossRef]

9. Akram, U.; Hui, P.; Kaleem Khan, M.; Tanveer, Y.; Mehmood, K.; Ahmad, W. How website quality affects online impulse buying: Moderating effects of sales promotion and credit card use. *Asia Pac. J. Mark. Logist.* **2018**, *30*, 235–256. [CrossRef]

10. Park, E.J.; Kim, E.Y.; Funches, V.M.; Foxx, W. Apparel product attributes, web browsing, and e-impulse buying on shopping websites. *J. Bus. Res.* **2012**, *65*, 1583–1589. [CrossRef]

11. Akram, U.; Hui, P.; Khan, M.K.; Saduzai, S.K.; Akram, Z.; Bhati, M.H. The plight of humanity: Online impulse shopping in China. *Hum. Syst. Manag.* **2017**, *36*, 73–90. [CrossRef]

12. Yu, C.; Bastin, M. Hedonic shopping value and impulse buying behavior in transitional economies: A symbiosis in the Mainland China marketplace. *J. Brand Manag.* **2010**, *18*, 105–114. [CrossRef]

13. Zhou, L.; Dai, L.; Zhang, D. Online shopping acceptance model: A critical survey of consumer factors in online shopping. *J. Electron. Commer. Res.* **2007**, *8*, 41–62.

14. Hausman, A. A multi-method investigation of consumer motivations in impulse buying behavior. *J. Consum. Mark.* **2000**, *17*, 403–417. [CrossRef]

15. Wolfinbarger, M.; Gilly, M. Shopping online for freedom, control, and fun. *Calif. Manag. Rev.* **2001**, *43*, 34–55. [CrossRef]

16. Novak, T.P.; Hoffman, D.L.; Duhachek, A. The influence of goal-directed and experiential activities on online ow experiences. *J. Consum. Psychol.* **2003**, *13*, 3–16.

17. Song, H.G.; Chung, N.; Koo, C. Impulsive buying behaviour of restaurant products in social commerce: A role of serendipity and scarcity message. In Proceedings of the 19th Pacific Asia Conference on Information Systems, PACIS 2015, Singapore, 6–9 July 2015.

18. Beatty, S.E.; Ferrell, E.M. Impulse buying: Modeling its precursors. *J. Retail.* **1998**, *74*, 161–167. [CrossRef]

19. Hansen, K.; Olsen, S.O. Impulsive buying behavior: The role of impulse buying tendencies and convenience orientation. In Proceedings of the ANZMAC Conference 2007, Dunedin, New Zealand, 3–5 December 2007; Volume 5, pp. 2199–2206.

20. Toms, E.G. Serendipitous Information Retrieval. DELOS Workshop: Information Seeking, Searching and Querying in Digital Libraries. 2000. Available online: www.ercim.eu/publication/wsproceedings/DelNoe01/3_Toms.pdf (assessed on 29 November 2017).

21. Zhang, Y.C.; Séaghdha, D.Ó.; Quercia, D.; Jambor, T. Auralist: Introducing serendipity into music recommendation. In Proceedings of the Fifth ACM International Conference on Web Search and Data Mining, Seattle, WA, USA, 8–12 February 2012; ACM: New York, NY, USA, 2012; pp. 13–22.

22. Lynn, M. Scarcity effects on desirability: Mediated by assumed expensiveness? *J. Econ. Psychol.* **1989**, *10*, 257–274. [CrossRef]

23. Sik, Y.; Hwan, S. Differences of revisit intention according to customers' experiences on social commerce discount deals. *e-Bus. Stud.* **2014**, *15*, 51–67.

24. Häubl, G.; Trifts, V. Consumer decision making in online shopping environments: The effects of interactive decision aids. *Mark. Sci.* **2000**, *19*, 4–21. [CrossRef]

25. Chen, J.V.; Su, B.C.; Widjaja, A.E. Facebook C2C social commerce: A study of online impulse buying. *Decis. Support Syst.* **2016**, *83*, 57–69. [CrossRef]

26. Kacen, J.J.; Lee, J.A. The influence of culture on consumer impulsive buying behaviour. *J. Consum. Psychol.* **2002**, *12*, 163–176. [CrossRef]

27. Stern, H. The significance of impulse buying today. *J. Mark.* **1962**, *26*, 59–62. [CrossRef]

28. Weinberg, P.; Gottwald, W. Impulsive consumer buying as a result of emotions. *J. Bus. Res.* **1982**, *10*, 43–57. [CrossRef]

29. Rook, D.W. The buying impulse. *J. Consum. Res.* **1987**, *14*, 189–199. [CrossRef]

30. Peck, J.; Childers, T.L. If I touch it I have to have it: Individual and environmental influences on impulse purchasing. *J. Bus. Res.* **2006**, *59*, 765–769. [CrossRef]

31. Wells, J.D.; Parboteeah, V.; Valacich, J.S. Online impulse buying: Understanding the interplay between consumer impulsiveness and website quality. *J. Assoc. Inf. Syst.* **2011**, *12*, 32–56.

32. Zhang, X.; Prybutok, V.R.; Koh, C.E. The role of impulsiveness in a TAM based online purchasing behaviour model. *Inf. Res. Manag. J.* **2006**, *19*, 54–68.

33. Lynn, M. Scarcity's enhancement of desirability: The role of naive economic theories. *Basic Appl. Soc. Psychol.* **1992**, *13*, 67–78. [CrossRef]

34. Brock, T.C. Implications of commodity theory for value change. In *Psychological Foundations of Attitudes*; Greenwald, A.G., Brock, T.C., Ostrom, T.M., Eds.; Academic Press: New York, NY, USA, 1968; pp. 243–275.

35. Brehm, S.S.; Brehm, J.W. *Psychological Reactance: A Theory of Freedom and Control*; Academic Press: New York, NY, USA, 1981.

36. Fromkin, H.L. Affective and Valuational Consequences of Self-Perceived Uniqueness Deprivation. Ph.D. Thesis, The Ohio State University, Columbus, OH, USA, 1968.

37. Lynn, M. Scarcity effects on value: A quantitative review of the commodity theory literature. *Psychol. Mark.* **1991**, *8*, 43–57. [CrossRef]

38. Rice, S.; Keller, D. Automation reliance under time pressure. *Int. J. Cogn. Technol.* **2009**, *14*, 36–45.

39. Mislove, A.; Gummadi, K.P.; Druschel, P. Exploiting social networks for internet search. In Proceedings of the 5th Workshop on Hot Topics in Networks (HotNets06), Irvine, CA, USA, 30 November–1 December 2006; pp. 79–84.

40. McCay-Peet, L.; Toms, E.G. The serendipity quotient. *Proc. Am. Soc. Inf. Sci. Technol.* **2011**, *48*, 1–4. [CrossRef]

41. Clegg, S.R.; Mendonça, S. On serendipity and organizing. *Eur. Manag. J.* **2010**, *28*, 319–330.

42. André, P.; Teevan, J.; Dumais, S.T. Discovery is never by chance: Designing for (un) serendipity. In Proceedings of the Seventh ACM Conference on Creativity and Cognition, Berkeley, CA, USA, 27–30 October 2009; ACM: New York, NY, USA, 2009; pp. 305–314.

43. Kim, S.B.; Sun, K.A.; Kim, D.Y. The influence of consumer value-based factors on attitude-behavioral intention in social commerce: The differences between high-and low-technology experience groups. *J. Travel Tour. Mark.* **2013**, *30*, 108–125. [CrossRef]

44. Bellotti, V.; Begole, B.; Chi, E.H.; Ducheneaut, N.; Fang, J.; Isaacs, E.; King, T.; Newman, M.W.; Partridge, K.; Price, B. Activity-based serendipitous recommendations with the Magitti mobile leisure guide. In Proceedings of the SIGCHI Conference on Human Factors in Computing Systems, Florence, Italy, 5–10 April 2008; ACM: New York, NY, USA, 2008; p. 1157.

45. Babin, B.J.; Darden, W.R.; Griffin, M. Work and/or fun: Measuring hedonic and utilitarian shopping value. *J. Consum. Res.* **1994**, *20*, 644–656. [CrossRef]

46. Rook, D.W.; Fisher, R.J. Normative in influences on impulsive buying behaviour. *J. Consum. Res.* **1995**, *22*, 305–313. [CrossRef]

47. Verplanken, B.; Herabadi, A.G.; Perry, J.A.; Silvera, D.H. Consumer style and health: The role of impulsive buying in unhealthy eating. *Psychol. Health* **2005**, *20*, 429–441. [CrossRef]

48. Hoffman, D.L.; Novak, T.P. Marketing in hypermedia computer-mediated environments: Conceptual foundations. *J. Mark.* **1996**, *60*, 50–68. [CrossRef]

49. Babin, B.J.; Attaway, J.S. Atmospheric affect as a tool for creating value and gaining share of customer. *J. Bus. Res.* **2000**, *49*, 91–99. [CrossRef]

50. Mathwick, C.; Malhotra, N.; Rigdon, E. Experiential value; conceptualization, measurement, and application in the catalog and internet shopping environment. *J. Retail.* **2001**, *11*, 39–56. [CrossRef]

51. To, P.L.; Liao, C.; Lin, T.H. Shopping motivations on internet: A study based on utilitarian and hedonic value. *Technovation* **2007**, *27*, 774–787. [CrossRef]

52. Childers, T.L.; Carr, C.L.; Peck, J.; Carson, S. Hedonic and utilitarian motivations for online retail shopping behavior. *J. Retail.* **2001**, *77*, 511–535. [CrossRef]

53. Eroglu, S.A.; Machleit, K.A.; Davis, L.M. Atmospheric qualities of online retailing: A conceptual model and implications. *J. Bus. Res.* **2001**, *54*, 177–184. [CrossRef]

54. Sherry, J.F. A sociocultural analysis of Midwestern flea market. *J. Consum. Res.* **1990**, *17*, 13–30. [CrossRef]

55. Sarkar, A. Impact of utilitarian and hedonic shopping values on individual's perceived benefits and risks in online shopping. *Int. Manag. Rev.* **2011**, *7*, 58–65.

56. Kim, S.; Eastin, M.S. Hedonic tendencies and the online consumer: An investigation of the online shopping process. *J. Int. Commer.* **2011**, *10*, 68–90. [CrossRef]

57. Arnold, M.J.; Reynolds, K.E. Hedonic shopping motivations. *J. Retail.* **2003**, *79*, 77–95. [CrossRef]

58. Ozen, H.; Engizek, N. Shopping online without thinking: Being emotional or rational? *Asia Pac. J. Mark. Logist.* **2014**, *26*, 78–93. [CrossRef]

59. Aggarwal, P.; Jun, S.Y.; Huh, J.H. Scarcity messages. *J. Advert.* **2011**, *40*, 19–30. [CrossRef]

60. Foster, A.; Ford, N. Serendipity and information seeking: An empirical study. *J. Doc.* **2003**, *59*, 321–340. [CrossRef]

61. Hantula, D.A.; Brockman, D.D.; Smith, C.L. Online shopping as foraging: The effects of increasing delays on purchasing and patch residence. *IEEE Trans. Prof. Commun.* **2008**, *51*, 147–154. [CrossRef]

62. Dawon, S.; Bloch, P.H.; Ridway, N.W. Shopping motives, emotional states, and retail outcomes. *J. Retail.* **1990**, *66*, 408–427.

63. Rohm, A.J.; Swaminathan, V. A typology of online shoppers based on shopping motivations. *J. Bus. Res.* **2004**, *57*, 748–757. [CrossRef]

64. Westbrook, R.A.; Black, W.C. A motivation-based shopper typology. *J. Retail.* **1985**, *61*, 78–103.

65. Webster, J.; Trevino, L.K.; Ryan, L. The dimensionality and correlates of flow in human-computer interactions. *Comput. Hum. Behav.* **1993**, *9*, 411–426. [CrossRef]

66. Chandon, P.; Wansibk, B.; Laurent, G. A benefit congruency framework of sales promotion effectiveness. *J. Mark.* **2000**, *64*, 65–81. [CrossRef]

67. Parsons, A.G. Non-functional motives for online shoppers: Why we click. *J. Consum. Mark.* **2002**, *19*, 380–392. [CrossRef]

68. Koufaris, M. Applying the technology acceptance model and flow theory to online consumer behavior. *Inf. Syst. Res.* **2002**, *13*, 205–223. [CrossRef]

69. Moe, W.W. Buying, searching or browsing: Differentiating between online shoppers using in-store navigational clickstream. *J. Consum. Psychol.* **2003**, *13*, 29–39.

70. Liao, Z.; Wong, W.K. The determinants of customer interactions with internet-enabled e-banking services. *J. Oper. Res. Soc.* **2008**, *59*, 1201–1210. [CrossRef]

71. Gefen, D.; Straub, D.; Boudreau, M.C. Structural equation modeling and regression: Guidelines for research practice. *Commun. Assoc. Inf. Syst.* **2000**, *4*, 1–78.

72. Anderson, J.C.; Gerbing, D.W. Structural equation modeling in practice: A review and recommended two-step approach. *Psychol. Bull.* **1988**, *103*, 411–423. [CrossRef]

73. Nunnally, J. *Psychometric Methods*; McGraw-Hill: New York, NY, USA, 1987.

74. Hair, J.F.; Black, W.C.; Babin, B.J.; Anderson, R.E. *Multivariate Data Analysis: A Global Perspective*; Prentice-Hall: Englewood Cliffs, NJ, USA, 2010.

75. Fornell, C.; Larcker, D.F. Evaluating structural equation models with unobservable variables and measurement error. *J. Mark. Res.* **1981**, *18*, 39–50. [CrossRef]

76. Podsakoff, P.M.; Organ, D.W. Self-Reports in Organizational Research: Problems and Prospects. *J. Manag.* **1986**, *12*, 531–544. [CrossRef]

77. Kock, N. Common Method Bias in Pls-Sem: A Full Collinearity Assessment Approach. *Int. J. e-Collab.* **2015**, *11*, 1–10. [CrossRef]

78. Cohen, J. *Statistical Power Analysis for the Behavioral Sciences*; Routledge Academic: New York, NY, USA, 2013.

79. Aiken, L.; Stephen, W.G. *Multiple Regression: Testing and Interpreting Interactions*; Sage: Newbury Park, CA, USA; London, UK, 1991.

80. Liao, J.; Wang, L. Face as a mediator of the relationship between material value and brand consciousness. *Psychol. Mark.* **2009**, *26*, 987–1001. [CrossRef]

81. Chung, N.; Chung, N.; Song, H.G.; Song, H.G.; Lee, H.; Lee, H. Consumers' impulsive buying behavior of restaurant products in social commerce. *Int. J. Contemp. Hosp. Manag.* **2017**, *29*, 709–731. [CrossRef]

82. Shin, D. User experience in social commerce: In friends we trust. *Behav. Inf. Technol.* **2013**, *32*, 52–67. [CrossRef]

83. Hajli, M. A research framework for social commerce adoption. *Inf. Manag. Comput. Secur.* **2013**, *21*, 144–154. [CrossRef]

84. Choi, Y.; Yu, Y. The influence of perceived corporate sustainability practices on employees and organizational performance. *Sustainability* **2014**, *6*, 348–364. [CrossRef]

85. Choi, Y.; Zhang, N. Introduction to the Special Issue on "The Sustainable Asia Conference 2014". *Sustainability* **2015**, *7*, 1595–1602. [CrossRef]

86. Park, J.; Lennon, S.J. Psychological and environmental antecedents of impulse buying tendency in the multichannel shopping context. *J. Consum. Mark.* **2006**, *23*, 56–66. [CrossRef]

87. Phau, I.; Lo, C.C. Profiling fashion innovators: A study of self-concept, impulse buying and internet purchase intent. *J. Fash. Mark. Manag.* **2004**, *8*, 399–411. [CrossRef]