How the strength of social ties influences users' information sharing and purchase intentions

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Abstract

Social media technology provides users with opportunities to search and share information, purchase products, and communicate with others. Companies can also build relationships with users, conduct marketing activities, and sell their products through social media networks. The theory of social networks provides a basis for how social ties facilitate users' behavior intention in the social commerce context. In this paper, by integrating theories of the social network and information sharing, we develop a model to explore how social ties impact users' purchase intention and information sharing intention, the mediating effect of perceived information quality and perceived information incredibility and the moderating effect of professionalism. A survey of 455 users from social network platforms shows that the strength of social ties enhances the perceived information quality and information incredibility, and thereby facilitates the purchase intention and information sharing intention. These findings confirm the positive moderating effect of professionalism on the relationship between the strength of social ties and purchase intention. This paper contributes to the social ties and information sharing literature and opens the black box of users' decision-making in the social network context. Collectively, these findings also have an impact on marketers to more effectively target users for spreading content with social media platforms.

Keywords Strength of social ties · Purchase intention · Information sharing intention · Perceived information quality · Perceived information credibility

Introduction

Social media platforms like Weibo, Wechat, Instagram and Facebook have become the main channels for people's daily communication. Users spend nearly two hours a day on social media platforms and frequently interact with other users. These sites provide an essential platform for interaction between users, establishing and maintaining relationships, and conducting business activities (Dang, 2020; Liu & Ma, 2018). It meets the shopping convenience and social sharing needs so that users can obtain product information through

communication and make purchases anytime, anywhere through smart devices. Thereby, non-contact social and economic activities on a global scale have increased dramatically in recent years. It is not surprising that social media plays an indispensable role in the lives of many people today.

Given the global popularity of such sites, what factors could affect user behavior in social media platforms have attracted the attention of researchers. The previous literature mostly focuses on social business characteristics, information mining, word of mouth, and these factors how to affect purchase intention or sharing behavior (Liang et al., 2020; Yang, 2019; Hajli, 2019). However, few studies explain users' behavior intentions from the perspective of social ties. Although Yang and Che (2020) discussed the social ties have a positive impact on purchase frequency, social ties are referred to as social ties between buyers and sellers. Thus, the different strengths of social ties how to influence user behavior intention via mediating mechanisms should receive researchers' attention. When persons makes a decision, they are more likely to be more influenced by strong ties (friends) than weak ties (acquaintances) (Brown & Reingen, 1987). Besides, word-of-mouth from people with different ties strengths will have a crucial impact on customer demand and decision-making

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(Martinsons, 2008; Ismagilova et al., 2019). Therefore, the relationship between social ties between users and behavior intention, and more complex mechanisms need to be clarified in future research.

Previous research also has yielded inconsistent results on the link between the strength of social ties and the influence on user behavior. In the word-of-mouth marketing market, the influence of strong ties is significantly greater than that of weak ties. Strong ties are particularly valuable in the online world, and most people are still willing to choose and believe in strong ties (Hu et al., 2019). However, some scholars have found that weak ties (such as distant friends and acquaintances) are more influential than strong ties when using consensus language. Consensus language refers to the words and expressions used by a group of people to agree on a certain point of view, product, or behavior (for example, "everyone likes this brand") (Lee & Kronrod, 2020). Understanding how the strength of social ties affects user behavior is crucial because in real life people tend to accept information from friends, family, and people with strong ties to them and create content with them, which in turn stimulates a series of behavioral responses (Cheung et al., 2014; Levin & Cross, 2004; Zhang & Godes, 2018). Besides, for companies, to achieve rapid customer growth in the current increasingly competitive environment, it is extremely effective to use social media for publicity. Thus, the strength of social ties can be perceived as a factor that stimulates users' behavior intentions, including sharing, purchase, or others. However, previous researches focused mainly on the direct effect of social ties on purchase intention, and only little is known about the mediating and/or moderating mechanism in this relationship. Moreover, most of the sharing behavior studies the possible influencing factors from the perspective of information sharing and knowledge sharing, and rarely discusses the sharing behavior from the perspective of social ties and social networks (Hwang et al., 2018; Shang et al., 2020).

To fill this gap and solve this problem, this study aims to clarify the relationship between the strength of social ties, purchase intention, and information sharing intention firstly. Secondly, explore the mediating role of perceived information quality and perceived information credibility. Finally, examine the impact of professionalism on the above relationships. Thus, collecting data through questionnaires to test the hypothesis, which is designed base on the previous mature scale and the unique context of this research. The results show that the strength of social ties has a positive influence on the purchase intention and information sharing intention of users. Professionalism strengthened the relationship between the strength of social ties and the purchase intention of users. Additionally, users are more likely to trust information shared by strong ties, perceived information quality, and perceived information credibility play a partial mediating role in the relationship among the strength of social ties, purchase intention, and information sharing. The findings of this study

expand the literature on social ties and information sharing, which also provide some useful advice for practitioners.

Conceptual Framework

Social ties refer to a series of social interactions between two, three, or more individuals. Previous studies have shown that social ties are extremely important to individuals' purchasing decisions (Arndt, 1967). Several studies have examined the effects of ties strength on user behavior from the nature of the relationship, trust, and IT affordances perspectives (Stanko et al., 2007; Liang et al., 2014; Dong & Wang, 2018). There is unclear evidence that social ties between users influence user behavior from the perspective of social networks. Prior research also has seldom use empirical data to examine the impact of the strength of social ties on information sharing intention and purchase intention via mediating and/or moderating mechanisms in the social media context. In particular, most of the research on information sharing in social media focuses on content sharing behavior, and psychologically related influencing factors such as privacy, perceived value, and trust (Dwyer et al., 2007; Fu et al., 2017; Ma et al., 2018). Thus, this paper will explain the relationship between these concepts in detail. The conceptual framework is summarized in Fig. 1.

Strength of Social Ties, Purchase Intention, and Information Sharing Intention

Strength of Social Ties

Users receive plenty of information every day in social media, but when studying user behavior, a key variable to consider is the source of the information (for example, who does the information come from?). One aspect of the source refers to the strength of ties between recipient and sender of the information, usually called social ties. Base on the theory of social networks, social ties reflect a special relationship that links partners through the exchange of mutual benefits and obligations (Wu & Wang Chiu, 2016). According to Granovetter (1973), ties strength refers to the strength of contact between network members and social ties can be divided into strong ties and weak ties based on it. Strong ties refer to the close and homogeneous relationship among people, and people will actively maintain their relationship and often talk with each other. These examples may include good friends, family members, or close colleagues. In contrast, weak ties are people who do not interact closely with each other such as casual acquaintances or colleagues (Lee & Kronrod, 2020).

Operationally, the strength of social ties can be measured by the time, frequency (talking to each other), emotional intensity, intimacy, and mutual communication of interaction (Granovetter, 1973; Marsden & Campbell, 1984). Similarly,

Fig. 1 Research model
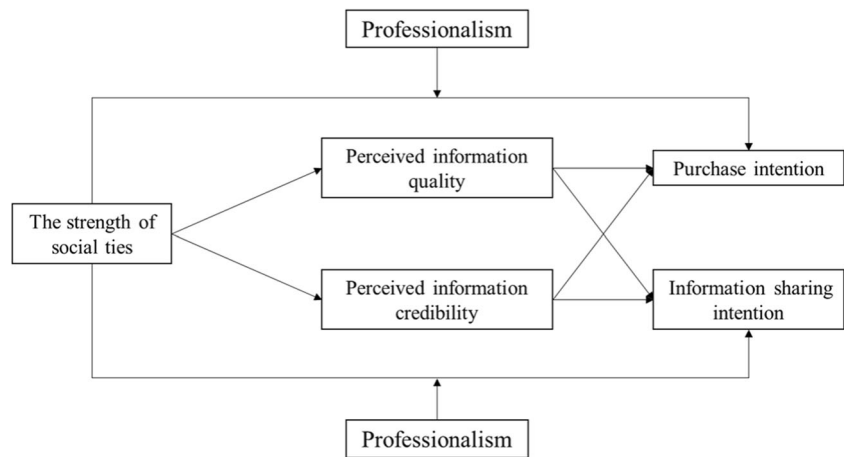
Stanko et al. (2007) used relationship quality, contact frequency, relationship duration, and contact frequency to determine the strength of social ties. Therefore, in this paper, the definition of the strength of social ties is the strength of interaction time, emotional intensity, and intimacy between individuals.

Strength of Social Ties and Purchase Intention

This study believes that the strength of social ties can be regarded as a key influencing factor of user behavior. Previous research has shown that social ties play an important role in the users' decision-making process and purchase frequency (Wang & Chang, 2013; Dong & Wang, 2018; Yang & Che, 2020). Given that any social interaction consumes participants' time and energy, strong social ties may increase users' expectations of obtaining effective information from social interactions. Therefore, the relationship utility is expected to be high, and the purchase intention of users is more likely to be influenced by people with strong ties. In daily life, people are willing to trust the person who is familiar with their recommended products. In contrast, weak social ties lack trust and the purchase intention of users is not motivated largely (Umashankar et al., 2017; Grewal & Stephen, 2019). In other words, users' purchase intention could increase more likely because the information comes from a trustworthy source (Dubois et al., 2016; Mohr & Walter, 2019). Similar reasoning, the marketing literature also examines the influence of the relationship between the enterprise and the customer on the purchase behavior and finds that the customer's tendency to repeat purchase is affected by the strength of the social ties between the buyer and the seller (Yang & Che, 2020). Therefore, consistent with the previous literature, it is believed that the strength of the social ties between users has a positive impact on their purchase intentions. We propose:

> H1. The strength of social ties has a positive impact on the purchase intention of users.

Strength of Social Ties and Information Sharing Intention

Recently information sharing become an important field of information system research (Huang & Kuo, 2020; Mirkovski et al., 2017; Ma et al., 2018). Information sharing theory recognizes that information sharing depends on an attitude that the nature of sharing is socially good (Kolekofski & Heminger, 2003). Some scholars have discovered that information sharing is inseparable from the rapid development of electronic media and computers (Jarvenpaa & Staples, 2000). Information sharing refers to the intensity of users' willingness to share information on social networks (Ajzen, 1975). Now, Common network sharing behaviors include sharing news, products, music, and some experiences to social network platforms through WeChat, Weibo, Twitter, Instagram, and other applications. Some studies have proposed that information with high perceived usefulness is easier to share, and people's perception of information and the value of information may become factors that affect people's sharing behavior (Shang et al., 2020; Hsiao, 2020). Moreover, Intrinsic motivation, equal and reciprocal interpersonal relationships also are the main factors affecting users' online information-sharing behavior (Cho, 2004; Mirkovski et al., 2017). Recently, some scholars have studied the users' knowledge/information sharing behavior from the perspective of social capital and social interaction (Ghahtarani et al., 2020). It has laid a certain foundation for the research of this article. This shows that the ties between users will affect information-sharing behavior. Users receive more pieces of information on social platforms every day and it is worth clarifying which part of the information they will share. Consistent with prior research, in this paper information sharing intention is defined as users actively share information after they receive some information from others.

Social interaction theory aims to explore the behavioral basis of individuals in the process of sharing knowledge (Ghahtarani et al., 2020). Based on this theory, individuals seek to maximize their interests while minimizing the cost of the exchange of resources. At the same time, interpersonal interactions can improve people's knowledge of products and services, so interpersonal interactions

will have an impact on user information sharing (Yang, 2019; Shang et al., 2020; Ghahtarani et al., 2020). Therefore, when analyzing users' information sharing intention, a key variable to consider is the strength of ties between users. Trust establishes and maintains the relationship between people. People with strong ties have a strong sense of trust, so they are likely to share information. That to say, users are willing to trust the information provided by friends or family members is more effective, valuable, and reliable. Furthermore, the stronger ties between users, the higher the likelihood of information being forwarded (Peng et al., 2018). On the contrary, users perceive risky from not familiar people (Huang & Zhou, 2019; Guo et al., 2018). Researches also proposed that social distance has an impact on the intention to share the electronic word of mouth (Yang, 2019). Based on the above discussion, the strength of social ties will help users to judge and select information and affect users' information sharing intention. Therefore, we thus propose:

> H2. The strength of social ties is positively associated with users' information sharing intention.

Strength of Social Ties, Perceived Information Quality, Purchase Intention, and Information Sharing Intention

Strength of Social Ties and Perceived Information Quality

Social ties also have an impact on perceived information quality. Information quality is defined as consumers' cognition of the usefulness and integrity of goods information or transaction information provided by other users in life (Kim et al., 2008). In the social network context, information quality refers to a user's perception of the relevance, usefulness, timeliness, and completeness of product information shared by other users from social media platforms (Zheng et al., 2017).

Prior studies have made great efforts to explain how social ties can affect users' behavior. The relationship between ties strength and influence is complex. As far as word-of-mouth information is transmitted, people may have different reactions to strong and weak ties (Yang, 2019; Lee & Kronrod, 2020). Similarly, users will have different feelings about messages sent by people with different ties strengths. Specifically, strong ties are often found to have an impact on their perception, because they are trusted, are more likely to understand a person's preferences, and are easier to provide useful information (Yang & Che, 2020; Zheng et al., 2017). Moreover, the strength of social ties also affects users' perceived diagnostic ability. The stronger ties, the stronger the diagnostic ability (Wang & Chang, 2013; Stephen & Lehmann, 2016). Therefore, the strength of social ties has an important effect on the users' perception of information quality. We proposed:

> H3a. The strength of social ties is positively associated with perceived information quality.

Perceived Information Quality and Purchase Intention

How do users react to information with higher perceived quality? Trust is a necessary factor in the process of social interaction. Users transfer their trust in people to the information they provide, and the perceived quality increases. Perceived information quality can be reflected in usefulness, completeness, and timeliness. First, users will learn more about the product if the information is useful, which catches users' attention (Kim & Park, 2013; Chiu et al., 2014). Secondly, when the product information is comprehensive, users can have an accurate understanding of the product and the attributes of the product they want to buy (Schoorman et al., 2007; Yuan et al., 2018). On this basis, the efficiency of users to make purchase decisions is significantly higher than that lack sufficient information (Gobinath & Gupta, 2016; Yang, 2018). Finally, updated and timely product information is helpful to obtain a new understanding of the product. Users can capture the latest news about the product and quickly find what they are interested in (Centola, 2010). The increase in users' perceived value of information quality can easily stimulate their purchase intentions. A person is easily influenced by the opinions of close friends around him. Thus, we expect the perceived information quality is related to the purchase intention of users. We proposed the following hypothesis:

> H3b. Perceived information quality is positively associated with purchase intention.

Perceived Information Quality and Information Sharing Intention

Researchers from the fields of psychology, sociology, and economics assume that all human actions stem from self-interest. Users look for returns (e.g., prizes reputation, and recognition) by maximizing their benefits and minimizing their costs in the process of information exchange with others (Lakhani & von Hippel, 2003; Zhang & Yuan, 2019). There is a certain connection between trust and sharing behavior, and the level of trust between people can create a willingness to share. Utility value, hedonic value, user satisfaction, and information source credibility are important factors that affect users' willingness to share (Ma et al., 2018). In other words, information with high perceived usefulness is also more likely to be shared (Shang et al., 2020). At the same time, personal motivation, attitude, and perceived behavior control also promote their willingness to share information (Huang & Kuo, 2020). Therefore, users are likely to share information with high information quality, because obtaining effective information is the main motivation of most people to use social networks. Some researchers have suggested that when there is trust between people, their intention to share information will be greater, and the likelihood of

copying behaviors will increase after close people like it (Mattke et al., 2020; Ghahtarani et al., 2020). People usually think that what family or friends provide is valuable, useful, and the perceived quality of information is high. When this perception exists, it may greatly affect the user's intention to share information, because they transfer their trust in the information source to the information itself (Zhang et al., 2014; Yang, 2018). Hence, the following hypotheses are stated:

H3c. Perceived information quality is positively associated with information sharing intention.

Strength of Social Ties, Perceived Information Credibility, Purchase Intention, and Information Sharing Intention

Strength of Social Ties, Perceived Information Credibility, and Purchase Intention

Social ties also have an impact on perceived information credibility. Bews and Rossouw (2002) claimed that credibility is the trustor's assessment of the trust. Information credibility refers to the users' perceived credibility of product information. It determines in a certain sense whether the product information is credible, true or consistent with facts (Cheung et al., 2008). In this paper, according to this definition, perceived information credibility is a comprehensive evaluation of actual, accurate, and reliable information received by users from information theory. In the process of purchasing products, information quality and information credibility play an important role in customer decision-making (DeLone & McLean, 2004; Mohr & Walter, 2019). Base on the theory of trust transfer, under certain conditions, an individual's trust in a special object can be transformed into trust in another one (Schoorman et al., 2007; Krämer et al., 2014; Hajli, 2019). Based on similar reasoning, studies have shown that the increase in the trust may reduce the perceived risk, which is an important research relationship (Bugshan & Attar, 2020). Because of the existence of researches, users are more willing to trust the information provided by strong ties is also possible. In other words, users are more willing to believe that the information provided by strong ties is more reliable and truly than weak ties (Ko et al., 2005; Yang, 2019). When users browse the information post by weak ties, the perceived risk will increase accordingly. Thus, the strength of social ties is related to perceived information credibility. This sense of perception is possible to increase user interest in relevant products, and subconsciously feel the influence from credible information on their purchasing decision processes (Bai et al., 2015; Park et al., 2018). The higher the reliability of users' perception of information, the easier it is to stimulate their purchase intention. Therefore, we proposed:

H4a. The strength of social ties is positively associated with perceived information credibility.

H4b. Perceived information credibility is positively associated with purchase intention.

Perceived Information Credibility and Information Sharing Intention

This study also believes that the credibility of user perception of information plays a key role in the process of triggering information sharing intentions. Previous research has shown that in the process of information transmission, not all information can transmit to users smoothly, and they are often facing various obstacles, such as not understanding the intention, tampering with the authenticity and practicability of information (Chen & Tseng, 2011). However, information with high credibility will receive overwhelming attention, for example, users will think that information that published by People's Daily is credible and the possibility of re-sharing is greatly increased after browsing. We can confirm this phenomenon from the number of reposts on the People's Daily Weibo. In the process of sharing information, the user's self-worth is promoted if the relevant information gets a lot of attention, which is also in line with the explanation of social exchange theory (Lin & Wang, 2020; Yang, 2018; Mirkovski et al., 2017). Therefore, users are most likely to be willing to share information with higher perceived credibility. In contrast, information from strangers, they are more likely to consider unreliable information and ignore it. Thus, perceived information credibility is likely to affect users' information sharing intention, the following hypothesis we proposed:

H4c. Perceived information credibility is positively associated with information sharing intention.

The Mediating Role of Perceived Information Quality and Perceived Information Credibility

In the previous discussion, the researchers propose that the strength of social ties has a positive impact on users' purchase intention and information sharing intention base on the social network theory, social exchange theory, and information sharing theory. The strength of social ties may greatly affect the perception of users. Because users can form different levels of psychological cognition of remote objects according to the strength of these ties. This perception can be reflected in the user's perceived information quality and perceived information credibility. Perceived information quality is users' cognition of different information sources (strong ties or weak ties), which also represents an increase in perceived value (Yang, 2018). In the previous discussion, we also mentioned that the

strength of social ties has an impact on perceived information credibility since users will transfer their trust in people to third-party information, thereby increasing the perceived credibility. Therefore, the stronger the social ties, the more likely the user's perceived information quality and perceived information credibility will increase, which is likely to promote the use's positive response to the received information (such as purchase intention, information sharing intention). The credibility of information sources plays a certain role in the strength of social ties and the purchase intention of users because users convert others' trust into trust in information sharing by other users (Ashraf et al., 2020). Different perception about information quality offered by strong or weak ties also affects behavior intention of users (Lin et al., 2019; Chen & Shen, 2015).

Therefore, in the research, it is proposed that the direct effect of the strength of social ties on users' purchase intention and information sharing intention will also be mediated by perceived information quality and perceived information credibility. Specifically, it is argued that the strength of social ties will enhance users' feelings of perceived information quality (Hypothesis 3a) and perceived information credibility (Hypothesis 4a), which, in turn, will have a positive impact on their purchase intention (Hypotheses 3b&4b) and information sharing intention (Hypotheses 3c&4c). The above-mentioned literature uses social network theory, social exchange theory, information sharing theory, and trust transfer theory to provide strong reasons for the mediation model and support the individual relationship between variables. Hence, the following two hypotheses are stated:

> H5a. Perceived information quality and perceived information credibility will mediate the effect of the strength of social ties on purchase intention.
> H5b. Perceived information quality and perceived information credibility will mediate the effect of the strength of social ties on information sharing intention.

The Moderating Role of Professionalism

In previous studies, the professionalism of information sharers or recommenders was regarded as the antecedent variable influencing users' behavior. The professionalism of users in social networks makes them possible for others to increase acceptance of information (Mattke et al., 2020). Research has shown that professionalism plays essential functions in network marketplaces, such as eliminating users' perception of risks in terms of social ties and information (Villanueva et al., 2008; Rahman & Soesilo, 2018). The professionalism of users refers to their ability to provide information accurately and appropriately (Bristor, 1990).

As mentioned earlier, the strength of social ties has an impact on purchase intentions and information sharing intentions, but these two relationships may be affected by professionalism. In the social network context, professionalism is likely to mitigate users' perception of risks inherent in the general information exchange environment (Zheng et al., 2017). Professionalism plays a core role in the process of the user purchase decision and information sharing, and it can help users obtain higher perceived value. That is to say, the influence process of the strength of social ties on purchasing intention and information sharing intention affect by professionalism. Professionalism can be regarded as a factor that effectively reduces uncertainty and affects user behavior (Rahman & Soesilo, 2018). Therefore, under the same strength of social ties, people with high professional levels are more likely to influence user behavior than those with low professional levels because users perceived less risk from a high professional level and would like to trust the information they provided. That is the higher professionalism, the stronger impact of social ties on purchase intention and information share intention. For example, when we watch Austin Li, a professional Taobao live anchor, even though we are not familiar with him, but we are likely to buy his recommended products and share his recommendation because of his professionalism. Consequently, professionalism will moderate the relationship between the strength of social ties, purchase intention, and the relationship between the strength of social ties and information share intention. Hence, the following hypothesis is proposed:

> H6a. The positive relationship between the strength of social ties and purchase intention will be stronger when professionalism is high.
> H6b. The positive relationship between the strength of social ties and information sharing intention will be stronger when professionalism is high.

Research Methodology

Measures

Base on the existing literature, this study developed a questionnaire to measure the strength of social ties, professionalism, perceived information quality, perceived information credibility, purchase intention, and information sharing intention. The construct of the strength of social ties was modified from items suggested by Ajzen (1975), Krackhardt (1992), and Granovetter (1973), including six items. Perceived information quality was measured by items adapted from Zheng et al. (2017) and Kim et al. (2008), containing four items. The measurement items for perceived information credibility were adapted from Cheung et al. (2008), including three items. Six items for purchase intention were adapted from Song and Zahedi (2005), Gefena and Straubb (2004). Information sharing intention was measured using items from Ajzen (1975), as well as Ridingsa et al. (2002), containing five items. The three

items for professionalism were adapted from Bansal and Voyer (2000), Gilly et al. (1998).

Data and Sample

This research uses the questionnaire survey method to collect data and verify the proposed hypothesis. The online survey sent to those who uses social networks and has shopping and sharing experience on the social network. The scale adopted in this study was modified on basis of the previous mature scale and the research background of social situations to ensure reliability and validity. Before the final data collection, we conducted a pre-test on participants from a certain university in north of China. We received 35 valid answers, and the results indicated that all items met the value of validity and reliability thresholds. Then we send the questionnaire to several active social network platforms like WeChat to invite users to fill in the questionnaire and ensure that all study participants had social commerce experience and sharing behavior as well. In the survey, we mainly asked the respondents to what extent they agree with these items and recorded their responses using a five-point Likert agreement scale (from 1 representing "strongly disagree", to 5 representing "strongly agree"), which is the most widely used psychometric measurement in research (Shao et al., 2015). Data were collected from December 24, 2017, to February 16, 2018. We eliminated

invalid questionnaires in the following ways: exclude respondents who submitted more than one questionnaire (we tracked and examined each volunteer's internet protocol address to ensure respondent submitted one questionnaire); too little survey time (that response time had the best performance regarding the detection of careless respondents); respondents who provided wrong answers to reverse coding items excluded; respondents who provided missing data were excluded and respondents who did not meet the screening questions were excluded. In the end, we obtained 455 valid responses, with an effective response rate of 83.6%. Table 1 describes the basic characteristic data of these respondents.

Analysis and Results

Test hypothesis through linear and hierarchical regression analysis in SPSS. We first checked for reliability and validity, and then we analyzed the measurement model and hypothesis.

Reliability and Validity Test

We checked the measurement model to evaluate the reliability and structure validity of key constructs. Reliability was evaluated by checking the constructs' Cronbach's Alpha and composite reliability. As shown in Table 2, all the values of

Table 1 Respondent demographics

Demographic variable	Category	Frequency	Percentage(%)
Gender	Male	170	37.4
	Female	285	62.6
Age	Under 18	4	0.9
	18–25	301	66.
	26–30	108	23.7
	31–40	35	7.7
	40 or older	7	1.5
Education	Senior high	9	2
	Junior college	63	13.8
	Bachelor	237	52.1
	Masters	134	29.5
	PhD	12	2.
Income	1000–2000	75	16.5
	2000–3000	92	20.2
	3000–5000	177	38.9
	5000–10,000	85	18.7
	10,000以上	26	5.7
Time of using social network platform	Less than 6 months	7	1.5
	6 months-1 year	19	4.2
	1–3 years	60	13.2
	3–5 years	129	28.4
	More than 5 years	240	52.7

Table 2 Credibility and reliability test

Constructs	Strength of social ties	Perceived information quality	Perceived information cedibility	Purchase intention	Information sharing intention	Professionalism
Item numbers	6	4	3	6	5	3
Cronbach's α	0.869	0.764	0.737	0.854	0.830	0.749
KMO	0.875	0.740	0.673	0.856	0.814	0.670
Cumulative variance contribution rate(%)	60.38	58.66	65.81	57.96	59.68	66.75

constructs exceed the recommended threshold of 0.7 (Fornell & Larcker, 1981). Validity was evaluated by the KMO test and Bartlett's test and the KMO values of all variables were greater than 0.670. In addition, the results of exploratory factor analysis indicated that the cumulative variance contribution rate of each variable reached a minimum of 50%, all of which exceeded 57%, which means that constructs have good internal consistency and external consistency.

Results

Table 3 provides descriptive statistics and Pearson correlation of variables. Furthermore, we examine whether multicollinearity problems exist. The maximum value of VIF is about 2, below the threshold value of 10.

The empirical results of the hypotheses are reported in Tables 4, 5, and 6. In Tables 4 and 5, estimation results are for the main effect and focus on mediating effect, while Table 6 presents results for moderating effect and we used SPSS with the hierarchical model to assess it. We first discuss the results presented in Table 4. Hypotheses 1 predicts a positive relationship between the strength of social ties and the purchase intention of users. When we add the strength of social ties in Model 3, its coefficient is positive and significant (β = 0.751, p =

0.000), in support of Hypothesis 1. Model 8 in Table 4, in turn, shows that the strength of social ties is positively related to information sharing intention because the coefficient of the strength of social ties is positive and significant (β = 0.661, p = 0.001), providing support for Hypothesis 2. The same logic, Hypothesis 3a, Hypothesis 3b, Hypothesis 3c, Hypothesis 4a, Hypothesis 4b, and Hypothesis4c are supported.

We examined the mediating effect of perceived information quality and credibility on the relationship among the strength of social ties, purchase intention and information share intention by Hayes (2013) approach. In comparison to the traditional methods proposed by Baron and Kenny, the bootstrapping method can directly test the indirect influence of the independent variable on the dependent variable. In this research, we made our analysis using PROCESS (by Hayes) and 5000 bootstraps resample were used to obtain the 95% confidence level. Table 5 shows the results of the mediation effects. The following principles are usually used to judge the role of full mediation and partial mediation. If the indirect effect is significant and the direct effect is not significant, the mediating variable plays a fully mediating role in the relationship between the independent variable and the dependent variable (Shang et al., 2020). If the indirect effect is significant and the direct effect is significant, the mediating

Table 3 Correlation matrix

Constructs	Means	1	2	3	4	5	6	7	8	9	10	11
Strength of social ties	3.6703	1										
Perceived information quality	3.8308	0.783**	1									
Perceived information credibility	3.9121	0.727**	0.783**	1								
Purchase intention	3.8799	0.788**	0.800**	0.767**	1							
Information sharing intention	3.9301	0.696**	0.714**	0.696**	0.778**	1						
Professionalism	3.9670	0.644**	0.700**	0.677**	0.768**	0.744**	1					
Gender	1.63	−0.078	−0.076	−0.033	−0.012	0.004	−0.0067	1				
Age	2.43	0.126**	0.086	0.091	0.090	0.088	0.070	0.126**	1			
Education	3.17	0.261**	0.249**	0.280**	0.334**	0.318**	0.301**	0.004	0.261**	1		
Income	2.77	0.224**	0.166**	0.128**	0.189**	0.140**	0.198**	0.415**	0.098*	0.224**	1	
Time to use social networks	4.27	0.122**	0.106*	0.149**	0.178**	0.209**	0.112*	0.036	0.280**	0.126**	0.122**	1

* p < 0.05, ** p < 0.01

Table 4 Hypotheses analysis results

DV	Perceived information quality Model 1	Perceived information credibility Model 2	Purchase intention					Information sharing intention				
			Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12
Gender	−0.022	0.008	0.034	0.038	0.010	0.044	0.031	0.036	0.041	0.016	0.046	0.033
Age	−0.008	0.022	−0.008	0.007	−0.012	−0.004	−0.016	0.019	0.031	0.014	0.022	0.010
Education	0.050	0.087*	0.122**	0.123**	0.117**	0.098**	0.088**	0.120**	0.119*	0.111*	0.098*	0.087**
Income	−0.012	−0.053	0.010	0.047	0.089	0.016	0.031	−0.035	−0.004	0.033	−0.030	−0.015
Time to use social networks	0.002	0.044	0.049	0.054	0.026	0.048	0.032	0.096*	0.100*	0.075*	0.095*	0.080*
IV Strength of social ties	0.772**	0.708**	0.751**			0.394**	0.474**	0.661**			0.332**	0.369**
MV												
Perceived information quality				0.758**		0.463**			0.675**		0.426**	
Perceived information credibility					0.720**		0.392**			0.649**		0.374**
R^2	0.611	0.534	0.637	0.662	0.606	0.720	0.708	0.509	0.538	0.502	0.578	0.573
Sig. of Model	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

* $p < 0.05$, ** $p < 0.01$; *IV* independent variable, *MV* mediating variable, *DV* dependent variable

variable is in the relationship between the variable and the dependent variable plays a partial mediating role. In Table 5, we can find that the indirect effects of the strength of social ties on purchase intention are significant and the direct effects are significant. This indicates that perceived information quality plays a partial mediation role between the strength of social ties and purchase intention. In the same logic, perceived information credibility plays a partial mediation role between the strength of social ties and purchase intention. Perceived information quality and perceived information credibility play a partial mediation role between the strength of social ties and information sharing intention respectively. Hypothesis 5a and Hypothesis 5b are supported.

To test hypotheses 6a and 6b we used the hierarchical regression analysis method. The results are presented in Table 6. In model 14, Δ F Sig. is significant (Sig values <0.1), and the coefficient of interaction is significant ($\beta = 0.050$, $P = 0.058$), indicating that the strength of social ties has stronger impact on purchase intention when professionalism is high. In model 16, Δ F Sig. is not significant (Sig values >0.1) and the coefficient of interaction is not significant ($\beta = 0.031$, $P = 0.297$), suggesting that professionalism does not play a positive moderating role in the strength of social ties and information share intention. Thus, professionalism only moderated on the relationship between the strength of social ties and purchase intention, H6a was supported, while H6b was not supported.

Table 5 Analysis of mediating effects

IV	MV	DV	Indirect effect			Direct effect			Mediation proportion
			Lower bound (5%)	Upper bound (95%)	Zero included?	Lower bound (5%)	Upper bound (95%)	Zero included?	
ST	PIQ	PI	0.2906	0.4374	No	0.3178	0.4793	No	Partial mediation
ST	PIC	PI	0.2192	0.3473	No	0.4041	0.5541	No	Partial mediation
ST	PIQ	ISI	0.2475	0.4181	No	0.2359	0.4335	No	Partial mediation
ST	PIC	ISI	0.1909	0.3531	No	0.3085	0.4895	No	Partial mediation

ST Strength of social ties, *PI* Purchase intention, *ISI* Information sharing intention, *PIQ* Perceived information quality, *PIC* Perceived information credibility, *IV* independent variable, *MV* mediating variable, *DV* dependent variable

Table 6 Analysis of moderating effects

DV	Purchase intention			Information sharing intention		
	Model 3	Model 13	Model 14	Model 8	Model 15	Model 16
Gender	0.034	0.046	0.043	0.036	0.050	0.048
Age	−0.008	0.007	0.004	0.019	0.036	0.034
Education	0.122**	0.060*	0.060*	0.120**	0.048	0.049
Income	0.010	−0.017	−0.017	−0.035	−0.066*	0−.066
Time to use social networks	0.049	0.052*	0.050*	0.096*	0.099*	0.098**
Strength of social ties	0.751**	0.494**	0.500**	0.661**	0.365**	0.369**
Professionalism.		0.497**	0.505**		0.497**	0.505**
Strength of social ties * Professionalism.			0.048			0.031
R^2	0.637	0.743	0.744	0.509	0.647	0.648
ΔR^2	0. 637	0.106	0.001	0.509	0. 138	0.001
Sig. ΔF	0.000	0.000	0.058	0.000	0.000	0.297
Sig. of Model	0.000	0.000	0.000	0.000	0.000	0.000

$*p < 0.05$, $**p < 0.01$, DV dependent variable

Discussion and Implications

Key Findings

Given the prevalence of social networks today, it has become an important platform for users to share information and find product recommendations. This paper aims to understand social ties in the social networks how to influence users' behavior (purchase intention and information sharing intention) by empirically testing a theoretical model. It also examined the partial mediation effects of perceived information quality and perceived information credibility in the relationships between the strength of social ties, purchase intention, and information sharing intention. Moreover, the results showed that professionalism moderates the effect of the strength of social ties on purchase intention. The specific findings can be summarized as follows.

First, we find that the strength of social ties influences both purchase intention and information sharing intention positively. To be specific, strong ties can weaken users' perceived risks and make it easier to believe what they say. Therefore, users are more likely to respond to behaviors, which stimulate purchase intentions and information sharing intentions. Users are willing to buy or share products or information provided by closer people under certain conditions. This finding is consistent with social network research, which found that strong and weak relationships can affect users' repeat purchase intentions, and social distance can also affect users' sharing behavior (Dong & Wang, 2018; Yang, 2019; Wang & Chang, 2013). However, the definition of social distance and the strength of social ties are still different. Few studies have examined the influence of the strength of social ties on information sharing intention.

Second, the strength of social ties not only directly affects purchase intention and information sharing intention, but also has an indirect effect through two different paths. The results of this study showed that perceived information quality and perceived information credibility partially mediated the relationship between the strength of social ties and the purchase intention of users, as well as the relationship between the strength of social ties and information sharing intention. Specifically, the increase in the strength of social ties causes an increase both in perceived information quality and perceived information credibility, which in turn leads to the increase of users' purchase intention and information sharing intention. This is possible because users' perception of information received from other users influenced by the strength of social ties between users (Yang, 2018). These perceptions could be reflected in information quality and information credibility. Some literature points out that perceived value and trust can reduce perceived risk and affect user behavior (Ou et al., 2014). Thus, the increase in perceived information quality and perceived information credibility further affects users' behavior intentions. There are little knowns about the mediating role of perceived information quality and perceived information credibility in the relationship between social ties, purchase intention and information sharing intention. Our research provides more explanations for why the strength of social ties can affect user behavior.

Third, our results also find that professionalism positively moderates the relationship between the strength of social ties and purchase intention, while it does not affect the relationship between the strength of social ties and

information sharing intention. In this sense, the higher user's professionalism, the less sensitive the recipients are concerned about risks from information providers' potential opportunistic behavior (Mattke et al., 2020). Consequently, trust will emerge among users and they could buy something actively. However, professionalism does not influence the relationship between the strength of social ties and information share intention. It is possible because users' intention to share information is influenced by their attitudes, either conservative or open. Some users are not willing to share information, even if they find relevant and reliable information. This finding is conducive to the understanding of the relationship between the strength of social ties and purchase intentions.

Theoretical Contributions

This study also makes some theoretical contributions. First, although previous studies have established a connection between social ties and purchase intentions, there is not much knowledge about the psychological mechanisms through which social ties affect these behaviors (Aral et al., 2013). To fill this gap, this research identifies two pathways in the form of perceived information quality and perceived information credibility through which the strength of social ties affects user behavior intentions, namely purchase intention and information sharing intention. Studies have shown that the strength of social ties can also be proven to be an important factor in the quality and credibility of perceived information. Besides, the perceived value and credibility of users may have a profound impact on the triggering of their behavior. Thus, the relationships examined in this study provide a useful framework for further studies on social commerce. Second, another novelty of the study is that it first examined the relationship between the strength of social ties and the information sharing intention. On this basis, this study broadens the existing information sharing literature and provides a new research perspective on the relationship between social ties and information sharing intentions. Specifically, the stronger social ties, the greater its influence on users, which in turn affects their willingness to share information. This result also provides insights into the influence of strong and weak ties. Finally, this research contributes to the existing literature on user purchase intentions by examining the moderating effects of professionalism differences. Our findings reveal that when professionalism is high, users' trust to information provider might be increased which make the relationship between the strength of social ties and purchase intention strongly. According to the above mentioned, we contribute to opening the black box of users' behavior in a social network context, and to the broader traditional purchase decision and information sharing literature.

Practical Implications

This study also has some useful implications for practitioners. Using social networks to recommend products for online or offline users is a great way to promote and popularize for marketing managers. First, given our findings, the strength of social ties plays a critical role in the purchase intention and information sharing intention by enhancing the perception of information quality and credibility. This evidence seems to indicate that narrow the distance with users can be a point of concern for firms or marketing managers. Thus, when need to promote new products, firms can plan relevant marketing activities to attract old users to share new products on their social media. In this way, users can help firms develop potential customers and expand consumer groups, while firms can also provide users with more detailed product information and discounts. Second, results showed that both perceived information quality and perceived information credibility have significant effects on both purchase intention and information share intention. Hence, close contact between firms and users will improve users' sense of trust and perceived value. To enhance the interaction with user-employee can participate in online community discussions, and reasonably combine online and offline product activities. Third, our data reveal that professionalism spurs the impact of social ties on purchase intention. Marketing managers could choose people with high professional knowledge to help publicize products or services. For example, cooperate with top-selling streamers (Viya & Austin Li) for product promotion and sales. Through this kind of cooperation, new customers can be added quickly. Meanwhile, they should also pay attention to user feedback to increase the usefulness of information dissemination.

Limitations and Future Research

This study also has several limitations, which in turn provide a basis for future research. First, the findings of this study are based on users' data from Chinese social media software. However, there may be different results in different social media platforms and different cultures. Therefore, to make research results universal, it is necessary to use samples from other platforms and other countries for further analysis. Second, we use cross-sectional data to test the research model. In the future, it is best to try panel data to analyze user behaviors. Third, future research can explore the influence of changes in the strength of social ties and non-social ties on social media user behavior.

Conclusion

The development of social media has encouraged users' sharing and experience, increasing the importance of social ties in

user or firm life. Our main findings indicate that the strength of social ties has a positive impact on purchase intention and information sharing intention respectively, mediating by perceived information quality and credibility. The research also reveals that professionalism strengthens the impact of social ties on purchase intention. These insights provide researchers with a new perspective on social ties and user behavior. The research also provides a specific framework for practitioners to make a fresh marketing strategy. In sum, the results of this research will greatly expand a deep understanding of social ties, purchase intention, and information sharing intention, as well as make a valuable contribution to this literature.

Appendix. Constructs and measurement items

Construct (Source)	Item
Strength of social ties (Ajzen, 1975; Granovetter, 1973)	I interact with him (her) almost every day
	I am very familiar with him (her) no matter in real life or on the Internet
	I and he (she) have similar backgrounds (hobbies, education, etc.)
	He (she) and I often discuss personal topics
	I exchange current affairs, news or life information with him (her)
	He (she) and I will share the feelings or experiences of online purchases with each other
Perceived information quality (Zheng et al., 2017; Kim et al., 2008)	I think the purchase information he (she) provided me is related to the information I need
	I think the purchase information he (she) provided me is useful to me
	I think the purchase information he (she) provided me is very timely for me
	I think the purchase information he (she) provided me is very detailed and complete
Perceived information reliability (Cheung et al., 2008)	I think the purchase information he (she) provided to me is true
	I think the purchase information he provided for (her) me is accurate
	I think the purchase information he (she) provided me is trustworthy
Purchase intention (Song & Zahedi, 2005; Gefena & Straubb, 2004)	The purchase information he (she) provided to me will help me make purchase decisions
	I think the purchase information he/she provided to me affected my purchase plan
	The purchase information provided by him or her has an important influence on my purchase decision
	I have the urge to buy the product or service recommended by him or her
	I will probably buy the product recommended by him or her
	I have a strong desire to buy the products recommended by him or her
Information sharing intention (Ajzen, 1975; Ridingsa et al., 2002)	I am willing to share information that I think is reliable on social networks
	I am willing to participate in the topic discussion of related products or services and express opinions
	I am willing to help others provide purchase information that I think is valuable
	I am willing to share the purchase information I obtained with others in my daily life
	I am willing to forward the purchase information obtained from him (her)
Professionalism (Bansal & Voyer, 2000; Gilly et al., 1998)	I think he (she) has expertise in a certain type of product or field (such as product brand, price, performance, etc.)
	I think he (she) can provide me with professional advice
	I think he (she) has rich buying experience and usage experience in a certain field

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Data Availability The datasets generated during and/or analyzed during the current study are not publicly available due to information protection but are available from the corresponding author on reasonable request.

Declarations

Conflict of Interest The authors declare that they have no conflict of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

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