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**The Effects of Collectivism and Polychronic Time Orientation on  
Online Social Interaction and Shopping Behavior: A Comparative  
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**Brief running title:** Collectivism, Time Orientation, Social Interaction and  
Online Shopping Behavior

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# **The Effects of Collectivism and Polychronic Time Orientation on Online Social Interaction and Shopping Behavior: A Comparative Study between China and France**

**Brief running title:** Collectivism, Time Orientation, Social Interaction and Online Shopping Behavior

**Abstract** This study proposes a model of online shopping behavior that examines the influence of collectivism and polychronic time orientation on customers' online social interaction in the context of social media and its influence on psychological reactions to this interaction (i.e., trust perception, browsing experience), which in turn influences behavioral intention to use online shopping. The model is empirically tested and results are compared across French and Chinese cultures. Results of multigroup structural equation modelling using a sample of more than 1,000 website visitors in both cultures support the hypotheses and show several non-invariant and invariant paths between the groups. Specifically, the influences of collectivism and polychronic time orientation on Internet users' social interaction are stronger for Chinese respondents than for French respondents. Moreover, the influence of social interaction on trust perception, and of trust perception on intention to use online shopping, are stronger for Chinese respondents than for French respondents. However, the influence of social interaction on browsing experience is similar between the two groups. Finally, the influence of trust perception on intention to use online shopping is found to be not significant for the French sample but significant for the Chinese sample. Implications for cross-cultural studies and managers are discussed.

**Key words:** Time orientation, social media, trust perception, browsing experience, cross-cultural study, online shopping

## 1. Introduction

Recent failures of large American e-business companies in China have revealed challenges of replicating an international business model in a country whose culture differs strongly from traditional European and American markets. For example, according to the China Internet Network Information Center<sup>[1]</sup>, Amazon's market share in China decreased from over 80% in 2006 to a mere 8.2% in 2011. One reason for e-business failures is the lack of understanding of "local cultural norms and preferences in their interface design, customer relationship management facilities and business models" [2, p. 147].

With respect to Chinese local markets and e-business, foreign companies may need to better account for the role of social networking. According to two recent reports by McKinsey & Company<sup>[3-4]</sup>, China has the world's most active social-media population with 91 percent of respondents saying they visited a social-media site in the previous six months, compared with 67 percent in the United States, and 70 percent in South Korea. In addition, Chinese users spend more time (46 minutes a day) on social-media sites than their counterparts in America (37 minutes a day), are more likely to consider buying a product if it is mentioned on a social-media site, and are more likely to purchase a product or service if a friend or acquaintance recommends it on a social-media site.

These differences underscore the potential impact of culture on e-social interactions and on online shopping behaviour. Culture is considered the strongest factor in explaining differences in consumer behavior<sup>[5-7]</sup>, and is also a key antecedent of consumer perception and behavior such as social search<sup>[8]</sup>, as well as acceptance of and intention to use e-commerce<sup>[9-10]</sup>.

Despite recent advances, however, few studies so far have investigated the link between cultural differences and online behavioral intentions on social network sites. Little is known

about how online social interactions affect users' intention to shop online, at either the country level or the individual level. Moreover, although a few recent studies have focused on the influence of social presence on online purchase intention through psychological factors such as trust and enjoyment<sup>[8, 11]</sup>, existing literature has not empirically investigated the relative influence of key antecedents of intentions to shop online, search for information and new products on websites or social media, or customers' navigation experience on websites or social media for fun and entertainment purposes.

We propose a comprehensive model of online shopping intentions that examines the effects of collectivism/individualism and polychronic/monochronic time orientation (simultaneous occurrences of task) on social interaction, which in turn influence two major social psychological factors: trust perception<sup>[11]</sup> and browsing experience<sup>[12]</sup>, and consequently behavioral intention to use online shopping. We chose to focus on collectivism/individualism and polychronic/monochronic time orientation because they are two of the most important and relevant dimensions of cultural differences which predict online behaviors in e-commerce research. For example, several cross-cultural studies<sup>[13-15]</sup> have found that people in a collectivistic culture tend to highly value their social networks and others' opinions, and to pay close attention to online social networking. They also focus more on social context and seek to comply with the wishes of others when making decisions. In addition, time orientation has a strong effect on consumer behavior. For example, polychronic consumers place more emphasis on relationships and leisure events than do monochronic consumers<sup>[16]</sup>. Both polychronic and monochronic time orientations influence customer Internet adoption<sup>[17]</sup>.

We test and compare the model using a sample of website visitors between French and Chinese cultures, which differ greatly in collectivism/individualism<sup>[18]</sup> and polychronic/monochronic-oriented values<sup>[19]</sup>. The central questions of this study are as follows: (1) do

collectivism and polychronic time orientation have a greater influence on social interactions for Chinese or French website visitors?; (2) does social interaction in turn have greater influence on online trust perception and browsing experience for Chinese or French website visitors?; and (3) do online trust perception and browsing experience have greater influence on online shopping intentions for Chinese or French website visitors as well?

This research is both relevant and timely. The US Census Bureau ranked China as the world's largest Internet market with 568 million online users in 2010. Further, the cultural values of modern Chinese consumers have changed dramatically due to globalization, such as Chinese cultural values differ in degree depending on users' age, education level and regional areas in China. This change has brought great challenges for international retailers and managers of multinational companies to effectively manage marketing strategy in this country. More specifically, the findings from a comparative culture-based study will provide useful evidence for global e-marketers who are seeking to develop international marketing strategies for better management in online social networking. Although our study focuses on Chinese consumers, we included French consumers as a point of comparison to highlight the differences between two distant cultures. Both China and France have contrasting cultures and represent two major regions in the world with significant e-commerce potential.

The paper has the following organization. After reviewing the literature, we derive hypotheses on how collectivism/individualism and time orientation influence social interaction and e-commerce shopping intentions. Using structural equation modeling (SEM), we test the hypotheses on a sample of Chinese and French consumers. We then present and discuss the results of the study, and conclude by specifying the study's contributions and limitations and suggesting future research directions.

## 2. Conceptual model and hypotheses development

This section describes our conceptual framework and hypotheses (consisting of 12 hypotheses in total). Figure 1 presents the framework.

----Please insert Figure 1 about here----

The role of culture in online shopping and online social networks has increasingly received attention in e-commerce research <sup>[8,20]</sup>. As an antecedent to psychological processes and human behavior <sup>[21]</sup>, culture influences attitudes, cognitive processes <sup>[22]</sup>, and lifestyle, as well as the way people communicate and interact with new media technologies <sup>[23]</sup>.

In the online environment, social networking websites have increasingly become a virtual meeting place for consumers <sup>[24-25]</sup>. These websites allow users to chat, make friends, interact with others, and build relationships, and also offer an interesting platform for sharing information, and purchasing products and services. Consumers can communicate by e-mail, get information on their favorite subjects or new products, and exchange opinions with other shoppers about products and firms. This exchange can help with their purchase decision <sup>[26]</sup> and make shopping more fun and interesting, as well as influence consumers' attitudes toward e-retailers' websites <sup>[27]</sup>. Further, for many online users, interacting with others and browsing online after work, during the week-end, and on holidays are favorite leisure activities that offer enjoyment and relaxation.

However, as mentioned, usage of social networks differs across cultures. For example, Korean consumers, whose culture is collectivistic, obtain greater enjoyment from chatting and making friends through websites than do American consumers, whose culture is individualistic <sup>[13]</sup>. Online social interaction is important in a collectivistic culture such as China. In fact,

culture may be the strongest determinant factor of differences in customer online social networking and online shopping behavior across cultures <sup>[8, 23]</sup>.

The cultural framework most adopted by cross-cultural research is the theory of cultural dimensions <sup>[28]</sup>, which is robust in explaining cultural differences in customer behavior, including online shopping behavior in social networking <sup>[29]</sup>. In particular, social interaction is the cultural dimension most widely used by researchers to explain the differences in in-group and out-group customer behavior in e-commerce <sup>[30]</sup>. As the theory focuses on individual interpersonal values, we adopt it as the first dominant cultural dimension in our research model. Despite the importance of this dimension, completely capturing the increasingly changed values in some nations may be impossible, owing to the changing global market <sup>[31]</sup>. For example, monochronic and polychronic time orientation <sup>[19]</sup> are dimensions in a research model investigating the influence of national culture on the adoption of innovation <sup>[32]</sup>.

Time orientation constitutes one of the most effective cultural elements for explaining cultural differences <sup>[19]</sup>, including customer online shopping behavior of modern Chinese people <sup>[33]</sup>. As increased competition in the Chinese market has made time management more important for Chinese users, managers must understand how time orientation influences an individual's online social interaction and shopping behavior. As a consequence, we adopt the dimension of monochronic and polychronic time orientation as the second dominant cultural factor in our research model.

### *2.1 Collectivism/individualism*

In collectivist cultures such as China, people tend to concentrate on interdependence and sociability <sup>[29]</sup>. As outlined above, people in collectivist cultures are more associated with online social interaction than people in individualist cultures. Members of collectivistic cultures tend to



make decisions according to the group members' opinion<sup>[34]</sup>. Social interaction will be strong among people in collectivist cultures<sup>[35]</sup>, which could elevate the importance of influence of referents<sup>[18]</sup>, and people in collectivist societies will be greatly influenced by other members of the society. This suggests the more collectivistic customers are, the more enjoyment they will get from online social interaction<sup>[8]</sup>. Thus, we hypothesize that:

*H<sub>1</sub>*: The collectivism-individualism dimension is directly and positively related to website users' online social interaction

## *2.2 Polychronic/monochronic time orientation*

Customer preferences toward time management arise mainly from personal values. People in a monochronic culture emphasize one thing at a time, tend to be well organized and punctual, and focus on tasks more than relationships<sup>[16, 19]</sup>. By contrast, people in a polychronic culture are less punctual and are more likely to do many things at once, and in an opportunistic way<sup>[36]</sup>, enjoying social harmony and in general emphasizing relationships more than tasks<sup>[16]</sup>. Thus, we suggest that polychronic consumers will prefer the aspects of social platforms that enable them to multi-task—for example, simultaneously watching television news, browsing the network, checking new product information, communicating with friends and so forth, from which they gain enjoyment and consequently engage in purchase behavior. Accordingly, we hypothesize that:

*H<sub>2</sub>*: Polychronic time orientation is more positively related to social interaction than is monochronic time orientation.

## *2.3 Social interaction as an antecedent of psychological reactions to interaction*

Several studies focus on the role of social interaction in online shopping behavior. For example, Hassanein and Head <sup>[11]</sup> find that higher levels of perceived social presence (imaginary interaction elements of the web interface, design elements that could manipulate online consumer perceptions of social presence) result in greater trust, more enjoyment, and higher perceived usefulness of online shopping websites. These effects in turn lead to more favorable consumer attitudes toward online shopping. Ou and Davison <sup>[2]</sup> also show that Chinese buyers' trust can be improved through buyer-seller communication channels. Doney et al. <sup>[29]</sup> define trust as the expectations and willingness of product, service or the ability and competence of shopping channel offered by one party to another party in a transaction. Few studies focus on the relationship between social interaction and browsing experience. Browsing, one of the main sources of recreational shopping <sup>[12]</sup>, is also a major activity for online users, and is a key source of site entertainment and social communication <sup>[37]</sup>. Thus, e-marketers must understand how social interactions among online users influence the browsing experience. In this study, browsing experience refers to customers' satisfaction with the navigation experience and does not include the purchase of products <sup>[38]</sup>. This discussion suggests:

*H<sub>3ab</sub>*: Social interaction is positively related to trust perception and browsing experience.

#### *2.4 Trust perception, browsing experience, and behavioral intention to use online shopping*

Social psychologists have extensively used the theory of reasoned action (TRA) <sup>[39]</sup> to predict intention to use, and we borrow elements of the theory to predict intention to use online shopping for French and Chinese website visitors. In TRA, behavioral intention to use is affected by behavioral attitude and subjective norms. In the present study, the two important behavioral attitudes related to online shopping are trust perception and browsing experience. Numerous

studies suggest that trust perception positively influences intention to use <sup>[11, 40-41]</sup>, and frequency of browsing online is positively associated with online purchase intention <sup>[37]</sup>. However, these studies failed to examine the relationships between the constructs, particularly across cultural situations. We hypothesize that:

$H_{4ab}$ : Browsing experience and trust perception are positively related to behavioral intention to use

### *2.5 Cultural factors-social interaction*

As online shopping frequency and practices differ with cultures, investigators have called for more cross-cultural comparisons of online shopping frameworks across cultures. Therefore, in this study, we compare our conceptual model across Chinese and French online social networks. As previously outlined, China's culture is usually classified as highly collectivistic and polychronic, while that of France is individualistic and monochronic <sup>[19, 42]</sup>. Numerous studies show that the Chinese are highly socially oriented <sup>[43]</sup>, and particularly relevant to this study is the finding that the Chinese view shopping more as a social activity than American consumers, who are considered more individualistic, and get more enjoyment from it <sup>[44]</sup>. Moreover, a strong Chinese cultural value is *guanxi*, meaning ties, relationships, and networks and encompassing the development of trust within those relationships <sup>[18]</sup>. *Guanxi* suggests the Chinese will socialize more with friends, family members, and colleagues through online social platforms and building relationships with them. Given that American and French consumers share similar individualistic values <sup>[45]</sup>, we hypothesize that:

$H_5$ : The effect of collectivism on social interaction is stronger for the Chinese than for the French.

*H*<sub>6</sub>: The effect of a polychronic time orientation on social interaction is stronger for the Chinese than for the French.

### *2.6 Social interaction-trust perception*

Consumers coming from collectivist cultures are more likely to trust someone who is part of their in-group, and also tend to evaluate performance on the basis of group achievements and goals <sup>[42]</sup>.

These characteristics imply that the more collectivistic a society tends to be, the more online social communication will occur among the members of this society, in turn leaving a stronger influence on their trust perception of e-sellers. Hence:

*H*<sub>7</sub>: The effect of online social interaction on trust perception is stronger for the Chinese than for the French.

### *2.7 Social interaction-browsing experience*

Several studies show that the Chinese are more likely to spend time searching for information and window shopping in stores than American consumers, and they receive more enjoyment from it <sup>[44, 46]</sup>. The results of our interviews show that Chinese respondents consider browsing in stores as their favorite social activity to a greater extent than do French respondents. However, little research has examined the relationship between social interaction and browsing in an online environment, especially in a comparison across cultures. We hypothesize that online social interaction influences the browsing experience more for the Chinese than for the French consumers. Hence, we postulate:

*H*<sub>8</sub>: The effect of online social interaction on the browsing experience is stronger for the Chinese than for the French.

## *2.8 Trust perception-intention to use*

Numerous studies suggest that, in general, members of collectivist cultures have a lower level of trust of e-retailers than do shoppers from individualistic cultures <sup>[47]</sup>. To mitigate this lack of trust, Chinese people rely on word-of-mouth from friends, family, and key opinion leaders, many of whom share information on social media <sup>[48]</sup>. Online trust is the most important determinant of success for e-retailers in China, especially for luxury products because of the risk counterfeit goods pose to consumers<sup>[1]</sup>. The issue of online trust is the main reason the penetration for the Chinese e-market was much lower than in developed markets such as United States (in 2009, 26% and 70% respectively), suggesting that perceived online trust has a greater influence on intention to use online shopping for the Chinese, relative to French, consumers. Thus we expect:

*H<sub>9</sub>*: The effect of trust perception on intention to use is stronger for the Chinese than for the French.

## *2.9 Browsing experience-intention to use*

As mentioned above, Chinese receive more enjoyment from window shopping and are willing to spend more time searching for information in retail settings than American consumers. For many Chinese, browsing in stores is the sole reason for going shopping. Thus, extrapolating from these results, we expect that the influence of the e-browsing experience on intention to use will be stronger for Chinese consumers than for French consumers. Hence:

*H<sub>10</sub>*: The effect of the browsing experience on behavioral intention to use online shopping is stronger for Chinese website visitors than for French website visitors.

Table1 summarizes the cultural value orientations and hypotheses.

---Please insert Table 1 about here---

### **3. Methodology**

#### *3.1 Sample and procedure*

To test the hypotheses, we designed and pre-tested a survey that instructed respondents to describe a typical social e-shopping experience. Respondents were then asked to describe their enjoyment of their social networking interaction, their feelings and reaction about these interaction experiences with e-commerce, their trust perception, and their feelings about browsing activity online. They were also asked to answer questions about their motivation to use a shopping channel as well as time orientation.

Data were collected from 617 French and 562 Chinese website visitors in e-cosmetic markets (including all websites of cosmetic enterprises, B2C, C2C, as well as social networks such as renren.com, QQ, t.qq.com in China). Prior to the survey, we informally interviewed ten female respondents in both countries to find indications of what category of products they most purchased online. We selected cosmetics as these came into their mind in nearly all cases. Finally, cosmetics were consistent with previous studies as this category of products has often been viewed as experience goods with global brands, and well-adapted to e-commerce research <sup>[49-50]</sup>. The globalized nature of this product category is particularly interesting for cross-cultural studies.

In the survey, all participants had purchased cosmetic products in the last 12 months through either online or offline shopping channels. All reported having used the Internet regularly, searching for product information or chatting and communicating with other Internet users—not only with friends, family members, and colleagues but also including e-sellers—to obtain advice, share information, and communicate with or make friends. Respondents were

recruited in different places in the cities (malls, restaurants, and coffee bars) and were asked to fill-up a questionnaire that lasted about 15 minutes. Interviews in China took place in Shanghai and Shenzhen, which are the two Chinese cities with top online markets and social networks<sup>[1]</sup>. Interviews in France took place in Rennes and Paris-- both cities shared similar income and demographics according to the French National Bureau of Statistics<sup>[51]</sup>.

Most respondents were consumers between the ages of 25 and 35 years (70% of Chinese and 61% of French). According to European Commission Bureau of Consumer Affairs<sup>[52]</sup>, the largest segment of cosmetics consumers was women falling within the 25-35 age-range. After eliminating incomplete responses, our final sample for testing the hypotheses consists of 597 French and 520 Chinese subjects.

### *3.2 Measures*

To measure the model's constructs, we selected and adapted the most authoritative and popular measures which were identified in prior research. Hofstede's<sup>[42]</sup> scale was used to measure collectivism-individualism (3 items). Kaufman et al.'s<sup>[53]</sup> scale was used to measure polychronic-monochronic time orientation (3 items). Arnold and Reynolds'<sup>[54]</sup> scale for hedonic motivation was used to measure social interaction (3 items). Trust perception (3 items) was measured with modifications from Jarvenpaa et al.'s<sup>[47]</sup> scale, and browsing experience was measured by a four-item scale with items adopted from Bloch and Richins<sup>[38]</sup> and Rizkalla's<sup>[55]</sup> studies, and based on our exploratory study. Behavioral intention to use online shopping is measured by a transformed 10-point Likert-type scale that ranged from 1=10 euros or yuans, to 10=100 euros or yuans, from an original measurement scale of 100 units (euros or yuans). Respondents were asked to select the amount they are willing to spend online.

In total, a scale of 17 items was generated (see Table 2). Demographic factors (age, education, and income, etc.) were also included in our final questionnaire. Except for intention to use, all items were measured by five-point Likert scales that ranged from 1=strongly disagree to 5= strongly agree. To ensure equivalence between the Chinese and French versions of the survey, two Chinese and two French bilingual translators carried out back translations.

## **4. Results**

### *4.1 Measurement model assessment and measurement invariance tests*

Data collected were divided into two samples. The first sample (of 297 French and 220 Chinese) was subjected to an exploratory factor analysis (EFA) to assess the dimensionality of the scale. The second sample (of 300 French and 300 Chinese) was subjected to a confirmatory factor analysis and a multigroup analysis to assess both the measurement models and structural equation models separately, as well as the measurement invariance tests in each country.

The results of the EFA and reliability tests show good unidimensionality and reliability of the scale for both samples. The analysis revealed the five expected factors with Eigen values greater than 1 that explained 65.8%/71.2% of the total variation for Chinese/French, with factor loadings ranging from 0.68-0.85 for the Chinese and 0.76-0.89 for the French. Both the Cronbach's  $\alpha$  and composite reliability of these factors are above 0.70, with all factors meeting the suggested recommended level of 0.70<sup>[56-57]</sup>. The results of the CFA (see Table 2) also show good measurement fit for both groups (CFI=0.99/0.93, RMSEA=0.028/0.051 for the French/Chinese sample, respectively), as well as acceptable convergent validity<sup>[58]</sup> and discriminant validity for both samples, thus confirming the measurement model of the research



constructs<sup>[59]</sup>. The results of the measurement invariance tests also confirm that our measurements for all the constructs of interest are invariant across the two groups<sup>1[59]</sup>. Finally, the normed chi-square of 1.78 for Chinese /1.34 for French indicated good model fit.

----Please insert Table 2 about here----

#### *4.2 Hypothesis testing*

To compare the difference in the weight of the relationships between the constructs across the two countries, we performed configural and metric invariance tests using the multigroup analysis function of AMOS through the two overall samples and the two covariance matrices independently, by constraining all factor loadings of collectivism (between col1-col3), and polychronic (pol1-pol3) to be equal across groups. Results showed that there is no difference in chi-square between the configural invariance model ( $\chi^2/df=1.441$ ; GFI=.945; CFI=.969; Delta2=.970; NFI=.908; and RMSEA=.027) and the partial metric invariance model ( $\chi^2/df=1.440$ , GFI=.944, CFI=.969, Delta2=.967, NFI=.907; RMSEA=.028). The configural invariance model also showed no increase from the baseline model (i.e., without constraints). These results confirm that our measurements for all the constructs of interest were relevant across the two countries.

Table 3 displays the individual standardized path estimates statistic resulting from multigroup structural equation modeling with Amos 4 for testing the model and H<sub>1</sub>-H<sub>4b</sub> in Figure 1. The two samples fit well with the hypothesized structural models (GFI= 0.94, IFI=0.96, CFI = 0.96, RMSEA = 0.029). All hypotheses of relationships are supported in the Chinese sample. Only H<sub>2</sub>

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<sup>1</sup> Details on the results of the cross-national measurement validation are available from the author. In addition, following recommendations by Jöreskog and Sörbom (1993), a conservative error variance was established for the single-item scale (i.e. behavioral intention of use).

and H<sub>4b</sub> are not supported in French sample. Contrary to H<sub>2</sub> and H<sub>4b</sub>, the influence of polychronism on social interaction ( $\beta = 0.01, p > 0.1$ ) and the effect of trust perception on intention to use ( $\beta = 0.03, p > 0.1$ ) are non-significant in the French sample, thus partially supporting H<sub>2</sub> and H<sub>4b</sub>. However, H<sub>1</sub>, H<sub>3a</sub>, H<sub>3b</sub>, and H<sub>4a</sub> are all supported in both samples.

To test H<sub>5</sub>-H<sub>10</sub>, which concern the moderating role of culture, multigroup structural equation model analyses<sup>[59]</sup> through Amos 4 with the maximum likelihood algorithm were used, allowing the models to fit separately across each group using the additional restriction required to assess the moderation. Six models were estimated for comparing the six paths between the two groups. Each hypothesis is tested through the *p*-values of chi-square difference of both constrained (by setting equal parameters between the two samples) and unconstrained models (parameters varying freely within each sample) to investigate the chi-square difference with 1 *df* at a significance level of  $p < 0.1$  (Table 3).

----Please insert Table 3 about here----

As Table 3 shows, H<sub>5</sub> and H<sub>6</sub> are supported, which suggests that the effect of collectivism and a polychronic time orientation on social interaction are stronger for the Chinese than for the French. As predicted, collectivism and polychronism have stronger ( $p < 0.01$ ) effects on social interaction for Chinese ( $\beta_{\text{Chinese}}=0.30$  and  $0.28$ ) than for the French ( $\beta_{\text{French}} = 0.16$  and  $0.02$ ). Also in line with H<sub>7</sub>, the effect of social interaction on trust perception is indeed stronger ( $p < 0.05$ ) for the Chinese ( $\beta = 0.38$ ) than for the French ( $\beta = 0.34$ ). However, H<sub>8</sub> (which posits that the influence of social interaction on browsing experience is stronger in China than in France) is not supported, as we find a similar relationship ( $p > 0.1$ ) between the two groups. Also, consistent with H<sub>9</sub>, the effect of trust perception on intention to use online shopping is much stronger ( $p < 0.05$ ) in China ( $\beta = 0.17$ ) than in France ( $\beta = -0.02$ ). As expected, the effect of browsing on

intention to use online shopping was greater ( $p < 0.1$ ) for Chinese respondents ( $\beta = 0.21$ ) than French respondents ( $\beta = 0.12$ ), supporting  $H_{10}$ . A summary of the hypothesis tests reporting the results at  $p < .01/.05/.10$  is shown in Table 3.

## **5. Discussion and implications**

Employing data from a large sample of Chinese and French website visitors, this study is among the first attempts to propose and empirically test a model of online shopping behavior in a cross-cultural context. The model examines the influence of collectivism/individualism and time orientation on customer social interaction and its influence on the psychological reactions of trust perception and browsing experience, and on behavioral intention to use. All relationships in the model are compared across cultures. The proposed model has a good model fit for all samples. All paths are significant in at least one group, suggesting the cross-cultural validity of our model, and support subsequent conclusions about the effects of national culture on online shopping behavior in social networks. Of these significant paths, only one is invariant between cultures, suggesting that differences do exist in this key behavior and that culture plays an important role in explaining such differences. Our results confirm that cultural values are antecedents to social interaction and indirectly influence the intention to use. Thus this study advances our knowledge of online e-social shopping behavior at the individual level as well as at the national level of two cultures.

Specifically, consistent with our hypotheses, multigroup analysis results suggest that the influences of collectivism and polychronism on Internet users' social interaction are stronger for the Chinese than for the French. In addition, users' social interaction indirectly relates to the behavioral intention to use. However, polychronism has a positive influence on social interaction

for Chinese shoppers but not for French shoppers, suggesting that the influence of time orientation on social interaction is not significantly different between the monochronic and polychronic groups in France.

In line with our hypotheses, the results suggest that the influence of social interaction on trust perception and the influence of trust perception on intention to use online shopping are stronger for Chinese shoppers than for French shoppers. As the Chinese place more emphasis on social experiences, they also have greater collectivism than the French, and this emphasis should lead to greater concern for trust for the Chinese, resulting in higher intention to use online shopping for the Chinese than for the French. However, contrary to our expectation, the findings of this study suggest that the influence of trust on intention to use is not significant for French online users, implying that improving the trust perception of French website visitors through social interaction will not result in more intention to use online shopping. One explanation for this unexpected finding is that in a highly monochronic and individualistic culture, as in France, people may have less concern for trust, and other factors such as time pressure and convenience may be more important than trust to their behavioral intention to use online shopping.

On the basis of the individualism/collectivism dimension, we also hypothesized that the effect of social interaction on browsing experience and trust is stronger for Chinese than for the French. However, we only found a differential effect of culture for the relationship between social interaction and trust. The results did not indicate that the relationship between social interaction and browsing experience was stronger in China. An alternative explanation may be that browsing is mostly a private activity in general (i.e. independent of cultures), as users tend to browse alone when doing online shopping. Such an activity may be less influenced by social interaction.

### *5.1 Theoretical implications*

From a theoretical point of view, this study develops a comprehensive model of online shopping behavior in social networks. The current literature in e-commerce has mentioned the role of cultures on social networking and online shopping but has provided limited empirical evidence to support these relationships in a comprehensive model [7-8, 13, 16, 32, 37-38, 60]. Our model is one of the first attempts to test the effects of cultures on online shopping behaviors in a social network context. Our findings provide a cross-cultural validation of our conceptual model explaining cultural factors as antecedents to the formation of different consumers' e-social interaction, which in turn influences customers' psychological reaction to this interaction (i.e., trust perception, browsing experience) and consequently their online purchase decision.

Specifically, our study provides additional insight into how customers' experiences in e-social networking and subsequent outcome behavior differ in terms of cultural values and time orientation. As the strength of collectivism/individualism and time orientation increases, the effects of social interaction on consumers' psychological reaction and purchase decision become more relevant. Further, as users increasingly enjoy online social networking, the effects of cultural value orientations and trust perception on consumers' intention to use an online shopping channel are stronger.

The Chinese culture tends to be highly collectivist and polychronic, whereas the French culture tends to be low collectivist and polychronic. Hence, our study extends the existing literature on customers' online shopping by providing further insights into the cultural variations in e-social networking and these variations influence online shopping behavior. Such a contribution is consistent with recent studies which called for more research on cultural differences in e-commerce [10].

## *5.2 Managerial implications*

In practical terms, the above findings have significant implications for global Internet marketers and managers of cosmetic enterprises in terms of how to create an ideal social networking and e-shopping experience for different cultural groups within a given country and across cultures. Our results confirm that these cultural factors can serve as efficient factors for global e-marketers to segment their e-social networking participants. Thus online marketing managers must be culturally sensitive in their approaches and adjust their social networking platforms according to each country's cultural traits. Creating appropriately enjoyable social activity in social networks leads to higher trust and a more enjoyable e-browsing experience, and consequently more online shopping use. Therefore, to enhance customers' intention to use online shopping, global e-marketers should build an effective social networking platform that takes into account the influence of these cultural factors. Facilitating cross-cultural users' social communication and interaction will allow marketers to gain competitive advantages in a global market. More precisely, we provide several culture-based suggestions to improve online purchase intentions as follows.

### *5.2.1 High collectivist- polychronic oriented cultures*

Countries such as China are classified as high collectivist and polychronic oriented culture. Since people holding these cultural values in general rely more on word-of-mouth from friends, family and expert opinions, and they are more likely to communicate and share information on social media, they also tend to find experts in order to earn leading opinion advice for important decision making and emotional support <sup>[60]</sup>. Therefore, for this population, the focus should be on building trust. For example, e-retailers should attempt to strengthen ingroup ties by using expert Search (which refers to people who has professional knowledge by using social network

service), communication function (meaning “function to have conversation with friends and to convey his/her opinion through social network service”) and connection functions (meaning “function to maintain relationship made offline through social network service”) <sup>[60]</sup>, to improve the perceived trustworthiness of their sites. They should also identify important platforms and pay more attention to the role of opinion leaders who have a significant number of followers, and who may bring a negative influence on a brand or a retailer if not managed well. In addition, developing good relationships is important for people in both collectivists and polychronic oriented cultures, and people in these cultures place greater emphasis on social groups, and are more willing to spend time to build and maintain their circles of friends. Thus e-retailers should take into account the role of social networks in building and maintaining relationships with their customers, and try to create effective social platform to facilitate users’ social communication through online or social media sites. As mentioned in our introduction part, the cultural values of Chinese consumers have changed dramatically in the last two decades due to the economic growth and increased globalization, hence the importance for managers to understand how this change influences the shopping behavior in this country. Our results provide useful information to help foreign vendors better understand this key issue-- it can also serve as a good guide in their marketing strategies and decisions of website design and differentiation in this large market.

### *5.2.2 Low collectivist-polychronic oriented cultures*

Countries such as the USA have high individualist and monochronic time orientation levels. For this group, the focus should be on the question of time. Because individualists and monochronics tend to base their decisions on cost–time/effort costs, the focus should be on creating effective content sharing and communication functions of social networks. Since the concept of low-context culture is closely connected to monochronic time orientation <sup>[61]</sup>, e-

retailers in monochronic-oriented culture should pay more attention to this difference in their website design, and enhance functions that allow conversations with friends and opinion sharing through social network services.

### *5.2.3 Low collectivist-high polychronic and monochronic oriented cultures*

Countries such as France have higher individualistic, high polychronic, and monochronic orientation. Trust relating to social interaction in online shopping is not a major issue. In addition, the time spent on social media for sharing and keeping in touch with friends is equally important for both monochronic and polychronic oriented users. Besides, increasing one's networks (in particular professional) and enjoyable browsing experience online such as browsing during leisure time, navigating for new products and trends, and navigating online and on social media sites for fun and entertainment, as well as being at the centre of the buzz/news, or becoming an e-influencer are becoming key drivers for people in this culture. Hence, e-retailers in this country should take into greater account these key elements.

Investigators have argued that Chinese e-businesses more successfully establish the buyer-seller communication channels and build a trustful relationship with their customers <sup>[2]</sup>. However, our findings suggest that this reasoning is not sufficient to explain recent e-business failures in China. Our results empirically confirm that other reasons, such as social interaction with other online users that should be added to explain failure and success in China. Because foreign e-businesses do not fully understand the social environment in China, they assume that the online trust is not much of a problem. Moreover, they underestimate the importance of online social interaction between sellers and buyers and between users and users or buyers and buyers in China to build trustful transactions. More importantly, foreign businesses are not aware of the influence of culture on Chinese online interaction and its influences on the process of buying



motivation—a lack of awareness that leads to failure. Taobao (Alibaba) is the perfect solution to these factors of online shopping behavior. Taobao's interactive platform has a quality superior to eBay's, which can better meet Chinese shoppers' needs. Our results suggest that, to gain a competitive advantage and avoid failure, global e-marketers in China should not ignore the influence of social interaction on online shopping behavior and its influence on trust perception and the browsing experience.

Our results confirm that global e-marketers should take into account both buyer-seller communication channels and the user-user or buyer-buyer communication channels to stimulate users' trust perception of sellers. This communication can more effectively satisfy users' psychological reaction to purchase behavior, resulting in more use of online shopping channels.

### *5.3 Limitations and future research*

Further study of other types of products and services or other countries and regions with different cultural values and time styles (e.g., US, UK), as well as other emerging countries (e.g., Brazil, India) that have different stages of economic development and the process of evolution of cultural value can reinforce the study. Further, to determine which of these two cultural factors has the greater role to play, we may examine the effect of their interaction on the online social networking experience and purchase decision process. This examination should further our understanding of a fundamental consideration in e-commerce across cultures: why and how e-shoppers differ across cultures.

## References

- [1] CNNIC in *Internet Statistical Report, Vol.* China Internet Network Information Center, **2010**.
- [2] C. X. J. Ou and R. M. Davison, Why eBay lost to TaoBao in China: The global advantage, *Communications of the ACM* 52(issue) 2009 145-148.
- [3] C. Chiu, A. Silverman and D. Lin in *China's social-media boom, Vol.* McKinsey & Company, **2012**.
- [4] C. Chiu, A. Silverman and D. Lin in *Understanding social media in China, Vol.* McKinsey & Company, **2012**.
- [5] J. L. Aaker and A. Y. Lee, "I" seek pleasures and "we" avoid pains: The role of self-regulatory goals in information processing and persuasion, *Journal of Consumer Research* 28(issue) 2001 33-49.
- [6] D. Ackennan and G. J. Tellis, Can culture affect prices? A cross-cultural study of shopping and retail prices, *Journal of Retailing* 71(issue) 2001 57-82.
- [7] Y. Truong, A cross-country study of consumer innovativeness and technological service innovation, *Journal of Retailing and Consumer Services* 20(issue) 2013 130-137.
- [8] S. Pookulangara and K. Koesler, Cultural influence on consumers' usage of social networks and its' impact on online purchase intentions, *Journal of Retailing and Consumer Services* 18(issue) 2011 348-354.
- [9] K. Goodrich and M. de Mooij, New technology mirrors old habits: online buying mirrors cross-national variance of conventional buying, *Journal of International Consumer Marketing* 23(issue) 2001 246-259.
- [10] J. Choi, H. J. Lee, F. Sajjad and H. Lee, The influence of national culture on the attitude towards mobile recommender systems, *Technological Forecasting and Social Change* 2013.
- [11] K. Hassanein and M. Head, Manipulating perceived social presence through the web interface and its impact on attitude towards online shopping, *International Journal of Human-Computer Studies* 65(issue) 2007 689-708.
- [12] A. D. Cox, D. Cox and R. D. Anderson, Reassessing the pleasures of store shopping, *Journal of Business Research* 58(issue) 2005 250-259.
- [13] C. La Ferle and H.-J. Kim, Cultural influences on internet motivations and communication styles: a comparison of Korean and US consumer, *International Journal of Internet Marketing and Advertising* 3(issue) 2006 142-157.
- [14] C. Lee and R. T. Green, Cross-cultural examination of the Fishbein Behavioral Intentions Model, *Journal of International Business Studies* 22(issue) 1991 289-305.
- [15] X. Wang, Foreign direct investment and innovation in China's e-commerce sector, *Journal of Asian Economics Asiéco* 775(issue) 2011 1-14.
- [16] C. Benabou, Polychronicity and temporal dimensions of work in learning organizations, *Journal of Managerial Psychology* 14(issue) 1999 257-268.
- [17] H. Lee, Time and information technology: monochronicity, polychronicity and temporal symmetry, *European Journal of Information Systems* 8(issue) 1999 16-26.
- [18] G. Hofstede, *Culture's Consequences* (2nd ed.), Sage Publications, Thousand Oaks, CA, 2001.
- [19] E. T. Hall, *Beyond Culture*, Garden City, NY Doubleday & Company(issue) 1976.
- [20] R. Cachia, R. Compano and O. Da Costa, Grasping the potential of online social networks for foresight, *Technological Forecasting and Social Change* 74(issue) 2007 1179-1203.
- [21] M. H. Segall, W. J. Lonner and J. W. Berry, Cross-cultural psychology as a scholarly discipline, *American Psychologist* 53(issue) 1998 1101-1110.

- [22] D. K. Tse, K. H. Lee, J. Ver tinsky and D. Wehrung, Does culture matter? A cross-cultural study of executives choice, decisiveness, and risk adjustment in international marketing, *Journal of Marketing* 52(issue) 1998 81-95.
- [23] P. B. Brandtzaeg, Towards a unified media-user typology (MUT): a meta-analysis and review of the research literature on media-user typologies, *Computers in Human Behavior* 26(issue) 2010 940-956.
- [24] N. Corrocher, The adoption of Web 2.0 services: An empirical investigation, *Technological Forecasting and Social Change* 78(issue) 2011 547–558.
- [25] R. Cachia, R. Compañó and O. Da Costa, Grasping the potential of online social networks for foresight, *Technological Forecasting and Social Change* 74(issue) 2007 1179-1203.
- [26] R. V. Kozinets, The field behind the screen: Using netnography for marketing research in online communities, *Journal of Marketing Research* 39(issue) 2002 61-73.
- [27] C. Dennis, A. Morgan, L. T. Wright and C. Jayawardhena, Influences of social e-shopping in enhancing young women's online shopping behavior, *Journal of Customer Behavior* 9(issue) 2010 151-174.
- [28] G. Hofstede, *Cultures and organizations: Software of the mind*, McGraw Hill, 1991.
- [29] P. M. Doney, J. P. Cannon and M. R. Mullen, Understanding the influence of national culture on the development of trust, *Academy of Management Review* 23(issue) 1998 601-620.
- [30] C. L. Sia, K. H. Lim, K. Leung, M. K. Lee and W. W. Huang, Web strategies to promote internet shopping: Is cultural-customization needed?, *MIS Quarterly* 33(issue) 2009 491-512.
- [31] D. Oyserman, H. M. Coon and M. Kimmelmeier, Rethinking individualism and collectivism: evaluation of theoretical assumptions and meta-analyses, *Psychological Bulletin* 128(issue) 2002 3-72.
- [32] Y. M. van Everdingen and E. Waarts, The effect of national culture on the adoption of innovations, *Marketing Letters* 14(issue) 2003 217-232.
- [33] D. L. Xu-Priour, G. Cliquet and G. Q. Fu, The combined influence of time pressure and time orientation on consumers' multichannel choice: Evidence from China, *The International Review of Retail, Distribution and Consumer Research* In press.
- [34] S. O. Yoon, K. Suk, S. M. Lee and E. Y. Park, To seek variety or uniformity: The role of culture in consumers' choice in a group setting, *Marketing Letters* 22(issue) 2011 49-64.
- [35] K. F. Winsted, The service experience in two cultures: A behavioral perspective, *Journal of Retailing* 73(issue) 1997 337-360.
- [36] T. Morden, Models of national culture-A management review, *Cross Cultural Management* 6(issue) 1999 19-44.
- [37] E. S.-T. Wang, The effects of browsing frequency and gender on the relationship between perceived control and patronage intentions in E-tail, *International Journal of Electronic Commerce* 14(issue) 2010 129-144.
- [38] P. Bloch and M. Richins in *Shopping without purchase: an investigation of consumer behavior*, Vol. Eds.: R. Bagozzi and A. Tybout), Association for Consumer Research, Provo UT, pp. 389-393, 1983.
- [39] I. Ajzen and M. Fishbein, *Understanding attitudes and predicting social behavior*, Prentice Hall, Englewood Cliffs, N.J., 1980.
- [40] D. Gefen, E. Karahanna and D. W. Straub, Trust and TAM in online shopping: an integrated model, *MIS Quarterly* 27(issue) 2003 51-90.
- [41] Y. Truong, Antecedents of Consumer Acceptance of Mobile Advertising, *International Journal of Technology and Human Interaction* 7(issue) 2011 70-83.
- [42] G. Hofstede, *Culture's Consequences*, Sage Publications, Newbury Park, California, 1984.

- [43] L. Luo, The individual-oriented and social-oriented Chinese bicultural self: Testing the theory, *The Journal of Social Psychology* 148(issue) 2008 347-373.
- [44] K. B. Doran, Lessons learned in cross-cultural research of Chinese and North American consumers, *Journal of Business Research* 55(issue) 2002 823-829.
- [45] G. H. Hofstede, *Culture's consequences : comparing values, behaviors, institutions, and organizations across nations*, Sage Publications, Thousand Oaks, C.A., 2001, xx, 596.
- [46] D. Ackerman and G. Tellis, Can culture affect prices? A cross-cultural study of shopping and retail prices, *Journal of Retailing* 77(issue) 2001 57-82.
- [47] S. L. Jarvenpaa, N. Tractinsky and M. Vitale, Consumer trust in an Internet store: A cross-cultural validation, *Journal of Computer-Mediated Communication* 5(issue) 1999 1-35.
- [48] C. Chiu, D. Lin and A. Silverman in *China's social-media boom*, Vol. McKinsey & Company, **2012**.
- [49] L. R. Klein, Evaluating the potential of interactive media through a new lens: search versus experience goods, *Journal of Business Research* 41(issue) 1998 195-203.
- [50] E. J. Park, E. Y. Kim, V. M. Funches and W. Foxx, Apparel product attributes, web browsing, and e-impulse buying on shopping websites, *Journal of Business Research* 65(issue) 2012 1583-1589.
- [51] INSEE in *Statistiques Population*, Vol. Institut National de la Statistiques et des Etudes Economiques, **2014**.
- [52] ECCA in *Cosmetics*, Vol. European Commission Consumer Affairs, **2013**.
- [53] C. F. Kaufman, P. M. Lane and J. Lindquist, Exploring more than 24 hours a day: A preliminary investigation of polychronic time use, *Journal of Consumer Research* 18(issue) 1991 392-401.
- [54] M. J. Arnold and K. E. Roynolds, Hedonic shopping motivations, *Journal of Retailing* 79(issue) 2003 77-95.
- [55] A. N. Rizkalla, Sense of time urgency and consumer well-being: Testing alternative causal models, *Advance in Consumer Research* 16(issue) 1989 180-188.
- [56] J. C. Nunnally, *Psychometric Theory*, McGraw-Hill, New York, 1976.
- [57] R. A. Peterson and Y. Kim, On the relationship between coefficient alpha and composite reliability, *Journal of Applied Psychology* 98(issue) 2013 194.
- [58] C. Fornell and D. F. Larcker, Evaluating structural equation models with unobservable variables and measurement error, *Journal of Marketing Research* 18(issue) 1981 39-50.
- [59] J.-B. E. M. Steenkamp and H. Baumgartner, Assessing measurement invariance in cross-national consumer research, *Journal of Consumer Research* 25(issue) 1998 78-90.
- [60] Y. G. Ji , H. Hwan, S. Y. Ji, P. L. P. Rau, X. W. Fang and C. Ling, The influence of cultural differences on the use of social network services and the formation of social capital, *International Journal of Human-Computer Interaction* 26(issue) 2010 1100-1121.
- [61] E. T. Hall, *The dance of life*. Garden City, Anchor Press/Doubleday, New York, NY, 1984.

**Table 1** Characteristics of cultural value orientation and hypotheses

	High scores on dimension country	Low scores on dimension country	Expected influence on recreational shopping
Collectivism	Focus more on social identity roles, statuses and positions. less likely to trust someone who is not part of their ingroup	Focus more on personal time, achievement. More likely to trust people	Positive H <sub>1</sub>
	Pay more attention to online social networking Focus more on social context	Focus less on social context	
Polychronic orientation	Focus more on relationship Focus more on leisure events	Focus more on task Focus more on time value	Positive H <sub>2</sub>
Collectivism	<b>China</b> Higher	<b>France</b> Lower	H <sub>5</sub>
Polychronics	Higher	Lower	H <sub>6</sub>
	Prefer sharing information on social media.	Relatively less	
	Rely more on word-of-mouth from friends, family, and key opinion leaders.	Relatively less	
	Perceive higher enjoyment in window shopping and information searching.	Perceive relatively lower enjoyment in shopping.	Stronger in China H <sub>8</sub> , H <sub>10</sub>
	Value recommendations more, lack trust in formal institutions.	More trust	
	Be more skeptical of	Relatively less skeptical	Stronger in China

information from news  
sources and advertising.

H<sub>7</sub>, H<sub>9</sub>

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Sources: Ackerman and Tellis (2001); Doran (2002); Fletcher and Brown (1999); Hofstede (1980, 1984); Klukhohn and Strodbeck (1961); Krannich and Krannich (1992); Settle et al. (1979).

**Table 2** Measurement model assessment

N Construct (indicator)		Standardized factor loading ( <i>t</i> )		Average variance extracted	
		Chinese	French	Chinese	French
<b>Social interaction</b>		<b>0.70<sup>b</sup></b>	<b>0.77</b>	<b>0.42</b>	<b>0.56</b>
Soi1	Shopping with others is a bonding experience.	0.72 <sup>a</sup>	0.80 <sup>a</sup>		
Soi2	I enjoy socializing with others when I shop.	0.59(13.31) *	0.79 (14.70)*		
Soi3	I go shopping with my friends or family to socialize.	0.64 (12.37)*	0.65 (11.69)*		
<b>Trust</b>		<b>0.76</b>	<b>0.82</b>	<b>0.52</b>	<b>0.52</b>
Tru1	When I buy cosmetic products, I have confidence in the place I know.	0.78 <sup>a</sup>	0.69 <sup>a</sup>		
Tru2	At the place where I usually buy my cosmetic products, the store is known for always keeping its promises.	0.75 (9.91)*	0.70 (10.70)*		
Tru3	At the place where I usually buy my cosmetic products, the store meets my expectations.	0.64 (9.27)*	0.81 (12.07)*		
<b>Browsing</b>		<b>0.77</b>	<b>0.83</b>	<b>0.49</b>	<b>0.56</b>
Bro1	Browsing without having any precise objective to buy.	0.63 <sup>a</sup>	0.69 <sup>a</sup>		
Bro2	When I have time, I like to go to browse on store sites.	0.84(9.91)*	0.82( 11.84) )*		
Bro3	Browsing on store sites to see if there are novelties.	0.68 (9.20)*	0.74 (11.05)*		
Bro4	Browsing on store sites is an entertaining activity.	0.59 (8.22)*	0.73(10.94) )*		
<b>Collectivism</b>		<b>0.73</b>	<b>0.77</b>	<b>0.48</b>	<b>0.55</b>
Col1	Being accepted as a member of a group is more important than having autonomy and independence in at the workplace.	0.64 <sup>a</sup>	0.57 <sup>a</sup>		
Col2	Individual rewards are not as important as group welfare.	0.71 (8.37)*	0.82(8.90) *		
Col3	Group success is more important than individual success.	0.73 (8.39)*	0.80 (8.95)*		
<b>Polychronic</b>		<b>0.77</b>	<b>0.84</b>	<b>0.54</b>	<b>0.64</b>
Pol1	I believe people should try to do many things at once.	0.84 <sup>a</sup>	0.87 <sup>a</sup>		
Pol2	When I work by myself, I usually work on several projects at the same time.	0.61 (9.24)*	0.69 (12.13)*		
Pol3	I am comfortable doing several things at the same time.	0.75 (10.41)*	0.83 (13.85)*		

Model variables descriptive statistics and correlations (*with AVE*)

Model constructs	Mean	Std. Dev.	Correlations <sup>d</sup>
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			<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
1. Interaction	3.14	1.11	<b>0.50<sup>c</sup></b>					
2. Trust	3.85	0.89	0.38	<b>0.57</b>				
3. Browsing	3.40	1.24	0.46	0.25	<b>0.53</b>			
4. Collectivism	3.65	0.95	0.30	0.28	0.23	<b>0.53</b>		
5. Polychronism	3.07	1.08	0.12	0.20	0.04	0.01	<b>0.58</b>	
6. Behavioral intention	1.27	1.10	0.17	0.06	0.15	-0.04	0.10	<b>1</b>

Notes: <sup>a</sup>First  $\alpha$  path was set to 1, therefore, no  $t$ -values are given; \*  $p < .001$ .

<sup>b</sup>Figures in bold represent Cronbach's  $\alpha$

<sup>c</sup>AVE (average variance extracted) values are on diagonal (bold).

<sup>d</sup>Correlations among factors are off-diagonal.



**Table 3** Results of the invariance tests of the model between French and Chinese websites

Conceptual model	Cultural comparison	Paths	Chinese	French	$\chi^2$ differences ( <i>p</i> -value)	Hypotheses testing	
H1	H5	Collectivism-social interaction	0.30***	0.16**	<b>2.88</b> ( <b>&lt;0.1</b> )	(H1) Supported	(H5) Supported
H2	H6	Polychronism-social interaction	0.28***	0.02 <sup>n.s</sup>	<b>7.11</b> ( <b>&lt;0.01</b> )	(H2) Partially supported	(H6) Supported
H3a	H7	Social interaction-trust	0.38***	0.34**	<b>4.13</b> ( <b>&lt;0.05</b> )	(H3a) Supported	(H7) Supported
H3b	H8	Social interaction-browsing	0.42***	0.44***	0.11 ( <b>&gt;0.1</b> )	(H3b) Supported	(H8) Not supported
H4a	H9	Trust-intention to use	0.17***	0.02 <sup>n.s</sup>	<b>5.27</b> ( <b>&lt;0.05</b> )	(H4a) Partially supported	(H9) Supported
H4b	H10	Browsing-intention to use	0.21***	0.12*	<b>2.12</b> ( <b>&lt;0.1</b> )	(H4b) Supported	(H10) Supported

\*\*\**p* <0.01\*\**p* <0.05\**p* <0.10

**Fig. 1** Conceptual model and hypotheses

