MAKING POLITENESS BEYOND FEELING – AN INSTRUMENT FOR MEASURING IT IN ONLINE REALTORS' STOREFRONTS

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Abstract

Politeness plays a significant role in not only human civilization development, but also in business domain, especially in service industry since it reflects a major facet of service quality. To effectively manage politeness issues in commercial contexts, a method to measure it becomes necessary. In light of its significance and the lack of the corresponding research works in virtual commercial environments, this article presents the development of an instrument for gauging politeness in online realtors' storefronts. Confirmatory factor analysis was applied to confirm fitness of the structural model and quality of the measurement model. Findings show that customers tend to pay more attention to storefronts' behavioral transparency and offering useful information while they are evaluating politeness in realtors' online storefronts. With this instrument, online realtors can better measure and then accordingly manage politeness in their online storefronts. This work sets a stage for future studies investigating the relationships between politeness and other factors in the context of online service business.

Keywords: instrument, online realtor, politeness.

1. INTRODUCTION

1.1 Problem statement and proposition

Looking for ideal properties around a neighborhood is time-consuming, not to mention comparing and contrasting the candidates' various aspects later; this observation is in line with the finding of a professional survey: 52 percent of home buyers thought finding suitable property is the most difficult step in their home-buying processes [33]. Consequently, convenience and cost-efficiency motivate many real estate agents to build information-rich online storefronts for approaching more prospective customers in the age of Internet. Many customers with limited spare time tend to visit a realtor's online storefronts to collect relevant information; finding out items of interest that will motivate them to visit its physical storefronts in person to get further documents, sign contracts, and subsequently complete transactions. The survey by the national association of realtors (NAR) indicated that 92 percent of home buyers used the Internet to search properties; and the first step taken by 42 percent of home buyers during their home-buying processes is searching properties online [25]. Regarding where buyers found the home they actually purchased, 43 percent of buyers said they found their purchased homes online; and the number goes up to 52 percent in the group of 33-year-old buyers and the younger. In contrast, 33 percent of home buyers said they purchased what their real estate agents introduced [33]. According to a joint study from the NAR and Google [32], 78 percent of new home shoppers visit 3 or more web sites before taking further action on one particular real estate site.

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These figures clearly reflect that a real estate agent must proactively deal with the increasing online presence in their business, and need to take care of consumers' needs not only in physical, but also in online contexts for maintaining better competitiveness. During the stage of information collection and alternatives evaluation, intensive interactions with online realtors' storefronts make politeness issues significant. Among many characteristics of online storefronts that might influence customers' perceptions and intentions, various forms of impoliteness in a realtor's online storefronts that customers dislike will be adverse to that real estate agent. Because its competitors with superior politeness will gain better first impression and chance to attract prospective customers visit their physical storefronts where initial face-to-face contacts, subsequent interactions, and potential transactions will take place afterward.

Nevertheless, how can realtors tell whether their online storefronts where prospective customers obtain information and impression (brand image) are polite enough? How should a realtor improve the politeness in its online storefronts? To answer these questions objectively, this research presents an instrument for measuring politeness in realtors' online storefronts.

1.2 Politeness in Physical Contexts

In contrast to its significance, researchers and practitioners paid relatively rare attention to the politeness issue in physical contexts. Actually, the politeness theory introduced by Penelope Brown and Stephen Levinson [5] is one of few that built a theoretic foundation for seriously investigating interpersonal politeness issues. However, their theory gave a specific interpretation about politeness; it only focuses on linguistic strategies used in verbal communication among persons. In their opinion, politeness is the expression of speakers' intention to mitigate face threats caused by particular face threatening acts toward hearers. Besides, the theory stated that politeness consists of positive and negative parts; the positive part involves showing the speaker's approval, solidarity, and understanding to the addressees, while the negative part deals with lessening potential imposition. Since its inception, the politeness theory has influenced many relevant research works including those in the areas of human-computer interaction design [39], business administration [12], and others.

1.3 Politeness in Virtual Environment

The fast-increasing adoption of various online communities does draw attention from researchers who are concerned about the impact of politeness. Relevant research works found that politeness is a facilitator for interactions in specific online communities [6], anonymity tends to increase uncivilized conversation in online discussion groups [41], moreover, civil online comments have more persuasive power than uncivilized ones [8]. The common part among the above works is that they all focus on the linguistics characteristics of exchanged messages among participants.

In contrast to their online community counterparts, online merchants majorly interact with customers via computer-generated contents and actions responding to customers' requests. However, computer-human interactions include not only textual message exchange that is analogous to the verbal communication between persons, but also many aspects such as information architecture, look-and-feel of graphical user interface, responsiveness, ease of use, transparency, and many other aspects [19]. Consequently, politeness-related theoretical works focusing only on interpersonal verbal communications become inadequate to interpret, assess, and manage the politeness between human and online storefronts. In light of this inadequacy, Brian Whitworth established a "polite computing" framework [47] that took a multi-facet viewpoint to examine cyberspace's politeness beyond linguistic aspects. The framework consists of five principles for judging whether computer-initiated actions in five different facets are polite or not, based on users' perceptions. Comparing with the linguistic-oriented politeness theory, this framework is an ideal tool for assessing the extent to which an online storefront treats its patrons with politeness. In consequence, development of the politeness instrument in the present research work was based on this framework.

1.4 Motivation and research goals

Both prior studies and rationales show that although politeness in realtors' online storefronts is significant and well worth consideration, it is still vague about how to measure and manage it. The lack of a politeness-assessing mechanism motivates this research work aiming to develop an instrument for gauging the politeness in online realtors' storefronts based on patrons' perceptions. Besides, the consistency and validity of the instrument and its underlying model need to be examined against empirical data.

2. Prior Relevant Works

Politeness broadly refers to legitimate and considerate interactions among persons, which was found as a foundation of modern civilization [50] and a key factor upholding prosperous and peaceful societies [17]. In particular, politeness is significant within commercial contexts. A merchant will lose its customers gradually if it cannot treat them politely; even it has other merits such as competitive pricing, plentiful product choices, advanced facilities, convenient layout, etc. Impoliteness in commercial contexts often hurts people's feelings and faces, thus will overshadow the above merits, and leave customers negative impression and words-of-mouth. Based on practical experiences and rationales, politeness in commerce contexts influences peoples' perceptions, satisfaction, and loyalty. From the perspective of academia, many prior studies [30, 31, 51] confirmed the influence of politeness on customer satisfaction, which is a key driver of customer loyalty [15] and then sustainable revenue [4, 21]. Berry [2], Reynolds and Beatty [40] found that rapport consisting of enjoyable interactions and personal connections, is a major determinant affecting customers' satisfaction and loyalty, which contribute to a successful business. Kim and Davis [7] further pointed out that politeness plays a key role in early stage of nourishing rapport between sales representatives and customers. The implication of the above studies is that merchants are not likely to build a satisfying and loyal customer base without paying attention to the politeness issues in their commercial contexts.

On the other side, according to prior studies that developed instruments for measuring service quality in different segments, politeness was treated as one of the determinants of business' service quality [35, 38]. Service quality in turn has been proved as a significant influence not only on customer satisfaction in general service sectors such as retailing [37, 43], but also on homebuyers' re-purchasing and referral behaviors in real estate brokerage industry [42], which reflect the loyalty of customers, and obviously affect a real estate agent's success in the long term.

Superficially speaking, politeness is an abstract concept and thus hard to measure directly. However, some researchers found ways to measure politeness focusing on verbal communications due to the necessity of embedding this concept into people's behavioral model.

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The conventional "politeness theory" introduced by Brown and Levinson in the 1980s has been operationalized to build instruments for measuring politeness in different physical contexts. Among others, Dawn Lerman [27] built a scale for measuring politeness in order to examine the relationship between consumer politeness and their propensity to engage in various forms of complaining behavior. The 6 items in his scale were drawn from the politeness theory, 3 on the positive and 3 on the negative side. The 6 items collectively assess to which extent subjects are polite while they are expressing their thought and opinions verbally.

A prior study had found that people reciprocally expect politeness from computers (mainly, computer software or Web sites), just like they treat their computers with politeness [34]. The findings indicate that people do care about the politeness of computers with which they interact. When waves of computers and the Internet keep on permeating into various aspects of our daily life, customers eventually will well recognize the politeness issue in online storefronts, just like they do in physical commercial contexts. The practical implication is that, besides factors including visual design, functionality, operational procedure, and performance, the construction of a competitive online storefront, i.e., an e-commerce Web site, needs to take politeness issues into account.

While computers are continuously penetrating people's work, life, education, and other activities, it is reasonable that people will pay increasing attention to the politeness of computers (software and Web sites) with which they interact often. In consequence, there is a need to study the politeness management issues in computerized contexts. Brian Whitworth and his colleagues responded to this need; they introduced 5 principles (criteria) for judging software politeness, based on theories about sociology and socio-technical interactions [49]. The 5 principles are summarized as follows:

1. Respect user's rights; polite software respects and thus does not preempt users' rights. Besides, polite software does not utilize information before obtaining the permission from its owner.
2. Behave transparently; polite software does not change things in secret, in contrast, it clearly declares what it will do or is doing, the real purpose of the action, and who it represents.
3. Provide useful information; polite software helps users make informed decisions by providing useful and comprehensible information. In contrast, they avoid providing information that distract or even mislead users.
4. Remember users; polite software memorize its past interactions with a specific user, thus can bring that user's choices and preferences to future interactions.
5. Respond to users with fidelity; polite software must respond to users' requests faithfully rather than trying to pursue its own agenda.

This 5-principle definition is applicable to all forms of computer software with which users interact to perform particular tasks, such as standalone software, web sites (i.e., web-based software), Apps on mobile devices, software as a service (SaaS), etc. Whitworth [48] stated that impolite software is one kind of social error, which likely to drive away users. Most importantly, these users are prospective customers while they are strolling around merchants' online storefronts. Based on this polite computing framework, Dwyer [13] examined the behavioral targeting practices taken by many online advertisers and claimed that behavioral targeting is impolite, which undermines customers' trust in e-commerce contexts.

Obviously, politeness in realtors' online storefronts can be assessed according to the operationalized form of the framework by Whitworth, rather than the politeness theory focusing on linguistic strategies. Nevertheless, there is no reported work that investigated how to apply the framework to assess politeness quantitatively yet, nor reported instrument for measuring the politeness in realtors' online storefronts, where computer-initiated actions (include contents, modes, timing, etc.) affect users' feelings and perceptions.

3. Methodology

To operationalize the polite computing framework presented by Whitworth [49], the present work built a model with 5 latent factors corresponding to the 5 principles in polite computing framework, then drew 20 observable questionnaire items, each of them load on one particular latent factor. Next, the reliabilities of the instrument and its 5 factors were examined. Then, goodness-of-fit of three alternative models were checked, the most appropriate model was selected accordingly, followed by examining the reliability, construct validity, and factor structure of the model with best fitness.

3.1 Instrument development

Based on the principles of the polite computing framework, a group of 25 college and graduate students with at least 5 years of online shopping experience were recruited first. After a 4-week of acquaintance with 5 selected realtors' online storefronts, they were invited to draw observable action items, which they thought were able to assess to what extent visited realtors' online storefronts conformed to the latent principles of the polite computing framework. Then, a focus group comprising 5 faculty members with expertise in information management or business administration concluded total 20 questionnaire items; 4 items are associated with each construct corresponding to one particular principle in the polite computing framework. Each item aims to judge to what extent an online storefront treats patrons politely while it is performing a particular function. A pre-test of the questionnaire was performed by 12 students majoring in information management, and minor adjustments were made subsequently. Through this process, both face and content validity of the instrument were confirmed.

The negative wordings in items were used to match (remind) participants' unpleasant experiences, which incur their awareness of the politeness issues in virtual commercial contexts or they might ignore these issues. Each item was assessed by a 7-point Likert scale, with higher scores representing the high end of the negative (impoliteness) scale; 1 indicates "strongly disagree" while 7 means "strongly agree". Despite the instrument directly reports the degree of impoliteness rather than politeness, the degree of politeness could be correspondingly obtained with ease (degree_of_politeness = 7 - degree_of_impoliteness). For simplicity, it is called a degree of politeness in realtors' online storefronts (DEPROS) instrument in this article. Table I summarizes the 20 items in the instrument.

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Table 1 Descriptions of Items in the DEPROS Instrument

Construct (latent var)	Observable Variable	descriptions
Respect Right of Users	RR1	online storefronts played video or animation slowing down my browser but is hard-to-stoppable
	RR2	online storefronts popped-up disturbing but irrelevant messages from time to time
	RR3	online storefronts exploited membership information to send SPAM advertisement
	RR4	online storefronts changed the default setting of my browser, such as homepage
Behave Transparent	BT1	online storefronts installed software or change configuration on my devices stealthily
	BT2	online storefronts asked me to fill questionnaires without disclosing purposes honestly
	BT3	online storefronts apparently used twisted images to make patrons can not examine properties' real appearances
	BT4	online storefronts added me (member) to other online communities/groups without notification before doing so
Useful Information	UI1	online storefronts did not categorized their listed properties well, so I must face lots of irrelevant property items while looking for one particular kind of properties
	UI2	online storefronts showed me broken links or guided me to wrong destination via misleading link description
	UI3	online storefronts did not provide transportation information that facilitates route planning and scheduling
	UI4	online storefronts did not provide information about properties' surrendering areas
Familiar With Habits	FH1	online storefronts asked me to input my username every time when I tried to enter it
	FH2	online storefronts did not record my preferences that screened my candidates in the past
	FH3	online storefronts cannot keep track of my prior selections and similar items
	FH4	online storefronts asked me to provide contact information every time when I request a real person contact
Fidelity Response	FR1	online storefronts placed another property's advertisements within the property under review
	FR2	online storefronts ignored or changed my requests; such as preferences in screening particular property items.
	FR3	online storefronts popped out a window, but directed me to somewhere when I clicking its "close" button/icon
	FR4	online storefronts delivered a property's information but that is not identical to the one I chose in their catalogue

3.2 Empirical data collection - participants and procedure

An online questionnaire was used to collect participants' opinions; the participants were, in part, recruited from parents of undergraduate information management majors. To broaden the sampling population, friends and family members of the recruited parents were also invited.

Before answering the questionnaire, instructions were provided for guiding the participants to assess online storefronts of 4 local and 1 global real estate agents, in terms of their politeness. After the orientation, 286 participants filled the online survey during the 2018 spring semester. 219 completed the survey effectively; 117 (53.4%) of them are male, while 102 (46.6%) are female. The effective sample size is adequate for the subsequent statistical analysis according to Kim [23], who suggested that number of participants should be 5 to 10 times of the total questionnaire items (20 in this study).

4. Data Analysis

4.1 Reliability of the instrument

The Cronbach`s α values measure the internal consistency of the 5 latent factors and the instrument. As Table 2 shows, the Cronbach`s α values exceed Nunnally and Bernstein's [36] recommendation of 0.70 and support the use of the 5 factors and corresponding items in this instrument. The Cronbach`s α value of the overall instrument is 0.944, which indicates that the overall instrument has a very good internal consistency. In addition, deletion of the item RR1 resulted in higher construct reliability.

Table II. Reliability checking of the Instrument (*N*=219)

Latent factor	Observed variable	mean	SSD	Cronbach's α without	Cronbach's α
RR	RR1	3.58	0.902	0.771*	0.749
	RR2	3.87	1.103	0.622	
	RR3	4.07	1.149	0.645	
	RR4	3.90	1.108	0.701	
BT	BT1	3.82	1.141	0.816	0.869
	BT2	3.95	1.142	0.834	
	BT3	3.99	1.115	0.847	
	BT4	3.85	1.124	0.833	
UI	UI1	3.71	1.098	0.797	0.822
	UI2	3.71	1.047	0.749	
	UI3	4.01	1.007	0.766	
	UI4	3.74	1.040	0.789	
FH	FH1	3.79	1.049	0.695	0.774
	FH2	3.56	1.040	0.748	
	FH3	3.47	1.042	0.703	
	FH4	3.42	.975	0.730	
FR	FQ1	3.91	1.000	0.770	0.798
	FQ2	3.79	1.111	0.739	
	FQ3	3.74	1.100	0.760	
	FQ4	3.92	1.049	0.719	

*Obtaining higher construct reliability after deleting it

4.2 Item Adjustment

To check whether the 20-item instrument could be improved further, confirmatory factor analysis (CFA) was used to examine fitness of alternative models. Because the models were derived based on the prior polite computing framework, CFA was a preferable method for assessing how well they fit the data collected by this research. As Table 3 shows, comparing with its 20-item counterpart, the 19-item model has better goodness-of-fit according to the indices collectively. The removed item, RR1 has the factor loading (λ = 0.38) that is significantly lower than all other items' factor loadings, which range between 0.62 and 0.81. Its deduction improves the reliability of its loaded factor: RR (Respect Right of Users), from 0.749 to 0.771. After removing another item with the lowest factor loading, FH4, the goodness-of-fit indices improved further and all exceeded their threshold values. Further deduction could not improve the model's goodness-of-fit, so the 18-item (without RR1 and FH4) model was used as the basis for subsequent analysis.

Table 3 goodness-of-fit of two alternative models (*N*=219)

model	$\chi2$	$\chi2$/df	RMSEA	CFI	GFI	AGFI	SRMR	NFI	PGFI	PNFI
		< 3	< 0.08	≧0.9	≧0.8	≧0.8	≦0.05	≧0.9	≧0.5	≧0.5
First-order, 20-item	350.64	2.192	0.074	0.97	0.86	0.82	0.049	0.97	0.66	0.81
First-order, 19-item (deleting RR1)	308.48	2.172	0.073	0.98	0.87	0.83	0.046	0.96	0.65	0.8
First-order, 18-item (deleting RR1 & FH4)	254.4	2.035	0.069	0.98	0.89	0.84	0.043	0.97	0.65	0.79

4.3 Model selection

According to the polite computing theoretical framework and the approach for checking plausible alternative models presented by Doll and Torkzadeh [11], the present study compared 3 different models' fitness to the sampled data. As figure 1 shows, the 3 examined models are (A) the first-order, 5-factor uncorrelated model; (B) first-order, 5-factor correlated model; and (C) second-order 1-factor, first-order 5-factor model. The ability of a model to fit participants' responses to the 18 items was judged by the value of each model's goodness-of-fit index. This research used the LISREL to build the 3 models of interest and test the fitness of each model against the sample data. According to the models' goodness-of-fit index values that are summarized in Table 4, the model B is much better than its uncorrelated counterpart, model A. Model B and C generated close and both good model-data fits according to values of their relative and absolute indices [24].

Furthermore, in order to measure the ability of the second-order factor (politeness) to explain the covariation among the five first-order factors, target coefficient [29], which is equal to the ratio of the chi-square of model B to the chi-square of model C, was 0.782, an obvious indication of

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the second-order factor (politeness) can explain the covariation among the five first-order factors. In other words, the target coefficient value provided strong evidence of the second-order politeness factor in model C can explain 78.2 percent of the variation in the five first-order factors in model B. Based on the target coefficient value and model fit indices, the model C was chosen in the subsequent works analyzing the DEPROS instrument's measurement model and structural model.

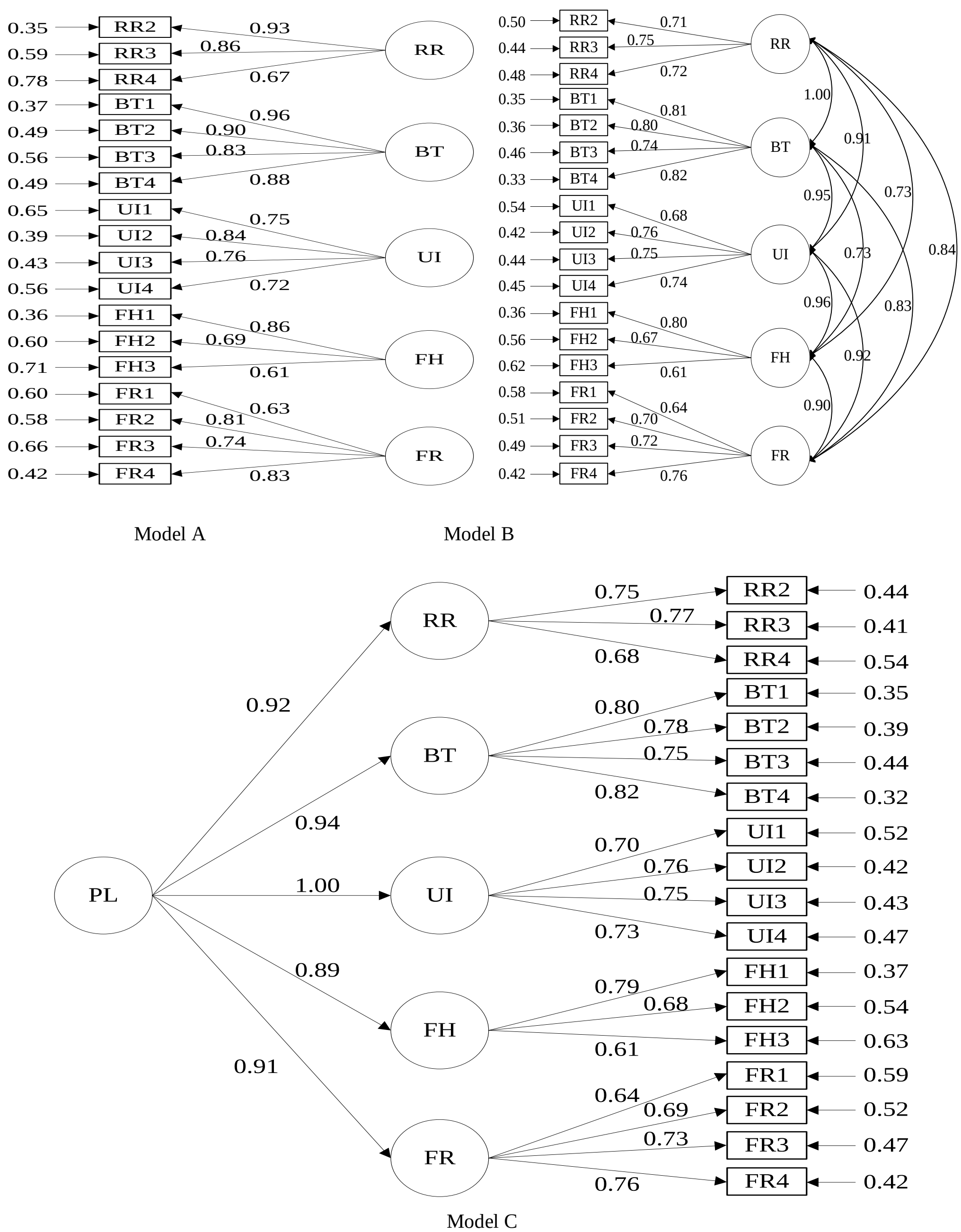

Figure. 1 Three alternative models with factor loadings and structural coefficients

Table 4. Goodness-of-fit indexes in alternative models (*N*=219)

model	χ2	χ2/df	RMSEA	CFI	GFI	AGFI	SRMR	NFI
		< 3	< 0.08	≧0.9	≧0.8	≧0.8	≦0.05	≧0.9
(A) 1st-order, 5-factor, uncorrelated	1676.08	12.42	0.202	0.87	0.6	0.5	0.42	0.86
(B) 1st-order, 5-factor, correlated	254.4	2.04	0.069	0.98	0.89	0.84	0.043	0.97
(C) 2nd-order, 5-factor	325.42	2.50	0.083	0.97	0.86	0.81	0.053	0.96

4.4 Measurement model analysis

Reliability and convergent validity

According to the suggestions of Bagozzi and Yi [1], this work applied maximum likelihood estimation to test the measurement model. The criteria include factor loadings and indicator reliabilities, i.e., square multiple correlation (SMC) of the 18 observed items, composite reliabilities (CR) and variance extracted (VE) of the five first-order factors, as Table 5 summarizes. Factor loadings above 0.32 represent substantial coefficient and structural equivalence [45], so all items in the DEPROS instrument were considered meaningful and retained for their loaded factor. The SMC values indicated that the reliabilities of individual observed items are higher or very close to the recommended level of 0.5 [1], except the FH4 and FR1 items. Composite reliabilities and variance extracted measure the reliability and convergent validity of each factor, respectively. The recommended cut-off values of CR and VE are 0.6 and 0.5, respectively [16]. Overall speaking, the analysis results showed the measurement model has good reliability and convergent validity.

Table 5 Measurement model fit indices for convergent validity (*N*=219)

Variable	Standardized loading	Measure error	Indicator reliability (SMC)	Composite reliability (CR)	Variance extracted (VE)
RR2	0.75	0.44	0.56	0.78	0.5
RR3	0.77	0.41	0.59		
RR4	0.68	0.54	0.46		
BT1	0.80	0.35	0.64	0.87	0.6
BT2	0.78	0.39	0.61		
BT3	0.75	0.44	0.56		
BT4	0.82	0.32	0.67		
UI1	0.70	0.52	0.49	0.82	0.5
UI2	0.76	0.42	0.58		
UI3	0.75	0.43	0.56		
UI4	0.73	0.47	0.53		
FH1	0.79	0.37	0.62	0.74	0.5
FH2	0.68	0.54	0.46		
FH3	0.61	0.63	0.37		
FR1	0.64	0.59	0.41	0.80	0.5
FR2	0.69	0.52	0.48		
FR3	0.73	0.47	0.53		
FR4	0.76	0.42	0.58		

Discriminant validity

As Table 6 shows, square root of the average variance extracted (AVE) of each construct was much larger than all other inter-factor correlations, and exceeds the recommended acceptable cut-off level of 0.7 [16]. So, the discriminant validity of the five latent constructs in the measurement model was confirmed. Taking both convergent and discriminant parts into account, construct validity of the measurement model was confirmed.

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Table 6 Inter-construct correlations matrix

Latent	RR	BT	UI	FH	FR
RR	0.73*				
BT	0.80	0.79*			
UI	0.70	0.76	0.74*		
FH	0.52	0.55	0.68	0.70*	
FR	0.63	0.67	0.68	0.62	0.71*

*: the square root of VE

4.5 Structural model analysis

As shown in Table 7, multiple goodness-of-fit indexes' values collectively confirmed that the model with five first-order factors loading on single second-order factor has a good fit to the sampled data, which mean that structural model can meaningfully represent the DEPROS instrument's underlying structure.

Table 7 Goodness-of-Fit Measurements

Goodness-of-fit measure		Level of acceptable fit	value
Chi-square			325.42 (P=0.0)
df			130
Chi-square/df		<3	2.5
RMSEA		<0.08	0.083
Absolute fit indices	GFI	>0.8	0.86
	AGFI	>0.8	0.81
	SRMR	<0.05	0.05
Parsimonious fit indices	PNFI	>0.5	0.81
	PGFI	>0.5	0.65
Relative fit indices	NFI	>0.9	0.96
	NNFI	>0.9	0.97
	CFI	>0.9	0.97
	IFI	>0.9	0.97
	RFI	>0.9	0.95

5. Discussion

According to the statistics in Table 2, only 2 items (RR3 and UI3) out of the 20 items were graded above the median (4.0) of the impoliteness scale: 4, which suggests sampled patrons thought realtors' online storefronts tend to be polite in their overall impression, but they are very close to the boundary between politeness and impoliteness. Among the 5 factors, "familiar with users' habits (FH)" is the one with relatively lower grade in the impoliteness scale; its 4 items range between 3.42 and 3.79. Rational explanations include that patrons generally thought virtual storefronts where they visited can remember their preferences, or there may be little or no information to remember anyway, or the patrons are not typically repeating visitors since most people do not buy real estate frequently, or the patrons' intention is to simply check general information and move on so they usually do not need to input information. On the other side, "behave transparently (BT)" is the factor with relatively higher impoliteness. Combining with its high loading ($\lambda = 0.94$) on the second-order politeness factor, online merchant should pay more attention to improve their behavioral transparency in order to gain better assessment in terms of politeness.

The second-order confirmatory factor analysis revealed that online shoppers placed heavy weight on the factor of respecting user's rights ($\lambda = 0.92$), the factor of behave transparently ($\lambda = 0.94$), the factor of obtaining useful information ($\lambda = 1.0$), and the factor of fidelity responding ($\lambda = 0.91$), while they are interpreting the impoliteness in online storefronts. In contrast, they put relatively less weight on whether online storefronts remember their identity and shopping preferences ($\lambda = 0.89$). Patrons prefer having more control in their shopping contexts and during their shopping processes [14, 18, 26, 44], which explains why patrons dislike that online storefronts preempt their rights. To many online home buyers, time efficiency is critical while they are going through a long purchasing process, which comprises several steps and often is time-consuming. In consequence, patrons dislike any useless information wasting their time during the course of searching properties, which is consistent with a prior study [44] that proved in for mativeness motive conducting business online.

In general, shoppers are price-sensitive [3, 22, 46], especially while they are purchasing high-priced items such as computers and travel packages [9], which usually cost a fraction of a real estate. That kind of sensitivity to pricy properties rationalizes subjects' concern about opaque and/or twisted information presented in realtors' online storefronts, since complete and correct information is necessary to determine a property's reasonable price range. As the analysis results suggested, realtors' online storefronts must behave transparently and offer crystal-clear information, because people are likely to form an attitude towards a business based on the observed aspects of its web site or online storefront [20, 28]. According to a professional survey [33], 98 percent of homebuyers think that honest/integrity is a very important factor while they are evaluating a real estate client, so it is hard for a realtor with an untruthful online storefront to convince prospective customers that it is the right choice for them.

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close to the boundary between politeness and impoliteness. Among the 5 factors, "familiar with users' habits (FH)" is the one with relatively lower grade in the impoliteness scale; its 4 items range between 3.42 and 3.79. Rational explanations include that patrons generally thought virtual storefronts where they visited can remember their preferences, or there may be little or no information to remember anyway, or the patrons are not typically repeating visitors since most people do not buy real estate frequently, or the patrons' intention is to simply check general information and move on so they usually do not need to input information. On the other side, "behave transparently (BT)" is the factor with relatively higher impoliteness. Combining with its high loading (λ = 0.94) on the second-order politeness factor, online merchant should pay more attention to improve their behavioral transparency in order to gain better assessment in terms of politeness.

The second-order confirmatory factor analysis revealed that online shoppers placed heavy weight on the factor of respecting user's rights (λ = 0.92), the factor of behave transparently (λ = 0.94), the factor of obtaining useful information (λ = 1.0), and the factor of fidelity responding (λ = 0.91), while they are interpreting the impoliteness in online storefronts. In contrast, they put relatively less weight on whether online storefronts remember their identity and shopping preferences (λ = 0.89). Patrons prefer having more control in their shopping contexts and during their shopping processes [14, 18, 26, 44], which explains why patrons dislike that online storefronts preempt their rights. To many online home buyers, time efficiency is critical while they are going through a long purchasing process, which comprises several steps and often is time-consuming. In consequence, patrons dislike any useless information wasting their time during the course of searching properties, which is consistent with a prior study [44] that proved in for mativeness motive conducting business online.

In general, shoppers are price-sensitive [3, 22, 46], especially while they are purchasing high-priced items such as computers and travel packages [9], which usually cost a fraction of a real estate. That kind of sensitivity to pricy properties rationalizes subjects' concern about opaque and/or twisted information presented in realtors' online storefronts, since complete and correct information is necessary to determine a property's reasonable price range. As the analysis results suggested, realtors' online storefronts must behave transparently and offer crystal-clear information, because people are likely to form an attitude towards a business based on the observed aspects of its web site or online storefront [20, 28]. According to a professional survey [33], 98 percent of homebuyers think that honest/integrity is a very important factor while they are evaluating a real estate client, so it is hard for a realtor with an untruthful online storefront to convince prospective customers that it is the right choice for them.

6. Conclusions

6.1 Contributions and limitations

In a civilized society, people dislike verbal and behavioral impoliteness, regardless of contexts. In real estate brokerage industry, substantial prospective customers with limited spare time tend to visit realtors' online storefronts to search items of interest first, and then go through the remaining process of buying or selling properties. Consequently, various forms of impoliteness in online storefronts that patrons tend to avoid will be harmful to online real estate agents later.

Thus, politeness management is an important task in online realtors. This work developed an instrument for gauging the degree of politeness in realtors' online storefronts. After developing the new instrument, this study confirmed the psychometric properties of the instrument and its underlying model with a sample of 219 subjects. Among other properties, the fitness of the factor structure was confirmed through testing a hierarchical model with five first-order factors loading on a second-order politeness construct by using confirmatory factor analysis.

The research findings indicate that subjects tend to perceive the selected realtors manage politeness in their online storefronts acceptably, but there is still a substantial room for improvement, particular in storefronts' behavior transparency. The factor structure and loadings show to what extent each factor of the politeness affects customers, so online merchants can focus on improving their weak points accordingly.

Regarding the limitations of this research, there are many aspects of choice including types of properties (house, condom, apartment, factory, land, etc.); subjects' society class, education, occupation, income, prior online shopping experience; and others collectively shape subjects' feelings, perceptions, and preferences. Therefore, further research work with diversity in subjects' aspects is necessary to generalize a commonly acceptable instrument for the online realtor industry; and meta-analytic structural equation modeling [10] is required to generalize the findings of related works.

6.2 Future directions

This work focuses on enabling measurement of politeness in realtors' online storefronts, and sets stage for prospective research on two major directions. One is the politeness management issue in virtual commercial contexts of other service segments, such as online consultancy, online travel agency, online retailing, and all others requiring intensive interactions between online storefronts and their patrons. Another direction worth pursuing is the influence of politeness on other constructs in online contexts of service business including real estate brokerage. These constructs might include but are not limited to rapport, perceived usefulness, perceived ease-of-use, trust, customer loyalty, and many others that interest business administrators.

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