

Linguistic Style and Online Review Helpfulness

Short Paper

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Abstract

This research investigates the effect of linguistic style (i.e. personal vs. impersonal writing) of online reviews on their perceived helpfulness. Analyzing a sample of 20,997 reviews from amazon.com, we report that reviews written in an impersonal linguistic style are perceived to be more helpful compared with those written in a personal style. Findings also suggest that the effect of the linguistic style on perceived review helpfulness is moderated by review attributes, including valence, extremity and level of affective content, but not by review length. Reviews written in impersonal style are more helpful when the reviews are of moderate opinion, lower valence and higher affective content.

Keywords: Online review, perceived helpfulness, text mining, linguistic style, personal vs. impersonal writing

Introduction

Online reviews have become an integral information source in our daily life. Whether it is to pick a movie, buy a book, or purchase an expensive item such as a new car, consumers read online reviews through various platforms in order to make a decision. Online reviews are not equally valued by consumers (Pan and Zhang 2011). While some are found very useful in evaluating product characteristics and usage experience, others are not. The extent to which an online review is helpful to readers is evaluated as helpfulness or diagnosticity of a review. Helpful online reviews are greatly valued by consumers/readers as well as firms/retailers because they complement the product information provided by firms to satisfy the information need of users. As a result, a great attention has been paid to understanding factors that contribute to the helpfulness of online reviews.

Previous research has mainly focused on descriptive characteristics, or “quantitative surrogates” (Mudambi and Schuff 2010, p.195), of reviews and reviewers (see Karimi and Wang 2017 for a review). For example, review attributes such as review valence (i.e. star rating such as 4 out of 5), length/depth, and extremity/equivocality (Forman, Ghose and Wiesenfeld 2008; Mudambi and Schuff 2010; Pan and Zhang 2011) and reviewer attributes such as reviewer identity disclosure, reviewer ranking, experience, availability of reviewer profile image (Baek, Ahn and Choi 2012; Karimi and Wang 2017) can explain review helpfulness. More recently researchers have started to examine the impact of review content on review helpfulness, using text analysis techniques. Although this line of research is still in its infancy, the initial results are promising, indicating the importance of text analysis in understanding consumer evaluation of review helpfulness. For example, using a latent semantic analysis based text-mining method, Cao et al. (2011) suggest that semantic characteristics of a review are more influential than generally studied descriptive characteristics in the number of helpfulness votes reviews receive.

Review content, similar to all types of written content, consists of two linguistic features: linguistic content, e.g. affective content, and linguistic style, i.e. the way a review is written. Psychology and sociology research suggest that both are important in influencing communication results (Ludwig et al. 2013). The linguistic style is an inseparable component of any written content, and facilitates the communication of the message. Different linguistic styles associate different characteristics to a written content and are favored in different social contexts. The current research on online review, or more generally product review, focuses on the linguistic content aspect of review content, e.g. sentiment (Danescu-Niculescu-Mizil et al. 2009; Hu, Koh and Reddy 2014; Yu et al. 2012), but largely ignores the impact of linguistic style. Studying linguistic style of online reviews will not only enhance our understanding of the communication effectiveness of online reviews, but also enrich the existing literature by identifying factors that may affect helpfulness of other forms of digital content. Additionally, it contributes to the linguistic style research by expanding its currently narrow scope, mainly on storytelling and learning, to communication effectiveness of user-generated content that has important business implications.

In light of the importance of linguistic style in communication effectiveness and the scant research on the impact of linguistic style of online reviews, this study explores the effect of linguistic style on review helpfulness. More specifically, it examines the differences between personal and impersonal writing styles, two fundamentally different linguistic styles. It aims to address (1) does linguistic style affect review helpfulness? (2) which linguistic style, between personal and impersonal writing, is more helpful in the online review context? and (3) is the effect more salient in reviews of certain attributes? To theorize and evaluate the effect of linguistic style on online review helpfulness, we borrow from the linguistic analysis of psychology research, and word-of-mouth and persuasion literature in consumer research. The linguistic style and linguistic content of reviews are evaluated using the Linguistic Inquiry and Word Count (LIWC) program, a commonly used text analysis application.

We collect and analyze a sample of 20,997 reviews on TVs and printers from amazon.com. The results indicate that reviews written in an impersonal style are perceived to be more helpful than those written in a personal style. Our analysis on the interaction effects indicates that the effect of the linguistic style on perceived review helpfulness is moderated by review attributes, including valence, extremity and level of affective content, but not by review length.

This research contributes to current literature on online review and its content analysis by examining detailed variations in linguistic style of reviews that goes beyond the overall sentiment of the review and illustrating how such linguistic characteristics relate to the previously tested descriptive characteristics of online reviews. Understanding its effect can help online retailers to identify and recommend helpful reviews and encourage review contributors to write more effective reviews.

Theoretical Background

Among a range of elements of online reviews available to readers, review content is with no doubt the most important element. Information seekers read review content to gain required information. As such, after a decade of research on descriptive features of reviews and reviewers, emerging research has commenced to examine the impact of online review content on review performance.

Communications literature distinguishes between linguistic content and linguistic style when assessing text content and suggests both are important in determining diagnosticity of a message or review (Huffaker, Swaab and Diermeier 2011; Ludwig et al. 2013). Current analysis on linguistic content focuses on review sentiment. For example, Salehan and Kim (2016) use SentiStrength software to assess the positive and negative sentiment in reviews from amazon.com, and report that sentimental reviews with neutral polarity are perceived to be more helpful. Comparatively, less effort is given to understand the linguistic style and its impact to review helpfulness. As one of few studies on linguistic style of online reviews, Ludwig et al. (2013) measure linguistic style compatibility by comparing the style of a review with that of other reviews of the same product (i.e. book), and report that compatibility of linguistic style directly and conjointly with affective content increases online retail sites' conversion rates. No research has studied specific types or elements of linguistic style of online reviews. This study fills the gap by examining the linguistic style of personal vs. impersonal writing and its impact on online review helpfulness.

Personal vs. Impersonal Writing and Perceived Review Helpfulness

Consider the difference of the following two short product reviews:

- (1) The printer works well.
- (2) I like this printer.

or the following longer reviews:

- (1) The picture is fine, but this was not a good buy. The user interface is completely awkward. The sound is terrible and there are no audio out jacks! At all!
- (2) Terrible picture quality. I've fiddled with this TV since I purchased it and the picture is still terrible. I'm not sure if I got a lemon, but the small 22-inch size isn't worth the money.

In both cases, (1) is written in a more impersonal style, whereas (2) has a more personal style. An impersonal style features objects rather than people as subjects of the sentence (e.g. "it" rather than "I", or "we") and has a passive voice; the personal writing style uses first person reference. Which style of writing makes the review more helpful for readers when processing the information and evaluating a product?

Personal vs. impersonal writing styles offer different characteristics to a text-based communication and are favored in different social contexts. Impersonal writing is often considered to be objective, thus factual. Personal writing, on the other hand, is associated with being subjective. Subjective information tends to be more personal and experience-based (Lee and Koo 2012). Meanwhile, self-mention is important to build writer's 'voice', thus enhances reader interaction (Hyland 2008). Impersonal writing is advised when writing to elide the human actor and emphasize the scientific process, while personal writing is often used in business and political communication to realize personal and affective appeals (Zupnik 1994).

Whether consumers are in favor of online reviews with a more personal or impersonal writing style may depend on the benefit that they derive from each writing style in their online information search process. Predominantly, consumers associate higher risk to the online environment than traditional shopping. Although online reviews provide rich information, they represent a subjective experience and overall interpretation of an individual (Wang, Cunningham and Eastin 2015). Their accuracy and reliability is a concern to readers since review contributors are not product experts and their opinions can be biased and/or exaggerated. Online reviews with an impersonal writing style provide factual information (Luan et al., 2016), and are considered to be less biased (Lee and Lee 2009). A personal writing style often entails and emphasizes experience sharing, which value is subject to individual reader's taste. Readers may undervalue a review if they consider an imparity with the reviewer. Therefore, in an online purchase context, an impersonal linguistic style corresponding to objective information may be perceived to be more helpful by readers. We test the following:

H1. Online product reviews written in an impersonal linguistic style are perceived to be more helpful than those written in a personal style.

The Interactive Effect of Linguistic Style and Review Attributes

Reviews are diverse in terms of review attributes and linguistic content. The commonly examined review attributes that influence review helpfulness are review length/depth, rating valence, and review equivocality/extremity (Karimi and Wang 2017). Previous research also suggests that linguistic content characteristic i.e. affective content has an impact on review helpfulness. These variables are controlled in our analysis. In addition, we explore their potential moderating effect. We suggest that the linguistic style may interact with review attributes and content characteristic, resulting in a stronger effect on review helpfulness for certain types of reviews.

Reviews are of various length/depth. Previous research has indicated that longer reviews are generally perceived to be more helpful than shorter reviews (Mudambi and Schuff 2010) because they provide more information and details. The longer descriptions and more detailed reviews are not only valued for the information they entail, but also for the opportunity they provide for readers to assess the quality, credibility, and reliability of the content while reading, thus reducing their concerns on the subjectivity and potential bias evoked by a personal writing style. On contrast, shorter reviews present less information, thus less opportunity for readers to assess the content quality and reliability. Therefore, the benefit of an impersonal writing style, i.e. focusing on the product and providing a sense of objectivity, factuality and

unbiasedness, may be heightened for shorter reviews than longer ones. As a result, readers may significantly favor more on reviews of an impersonal than those of a personal writing style when reading shorter reviews. We test:

H2(a). Review length moderates the effect of linguistic style on review helpfulness. Shorter reviews benefit more from an impersonal writing style than longer ones.

Reviews are of different rating valence, typically ranging from 1 to 5. Review valence could moderate the effect of linguistic style on review helpfulness. Prior research reports that review valence and review objectivity has an interactive effect on product attitudes and consumer purchase intention (Wang, Cunningham and Eastin 2015). Negative reviews written in an objective manner (statistical reviews) are perceived to be more credible than those written in a subjective manner (Hong and Park 2012). Negative reviews focus on potential drawbacks and elevate the importance of risk information presented by the reviewer. Impersonal reviews invoke heightened perceptions of objectivity, which is more valued when purchase risks are conveyed by a review. Therefore, we expect that negative reviews can benefit more from an impersonal linguistic style. We test:

H2(b). Review valence moderates the effect of linguistic style on review helpfulness. Reviews of lower valence benefit from more an impersonal writing style than those of higher valence.

Review opinions can be moderate or extreme. Previous research suggests that extreme reviews may be more attention drawing, but less credible and persuasive compared with moderate reviews (Mudambi and Schuff 2010). An impersonal writing style can lend objectivity and credibility to extreme reviews, gaining reader's trust, thus significantly improve their perceived helpfulness. Compared with extreme reviews, moderate reviews often present two sided arguments, thus are often considered to be more credible than extreme reviews. As a result, they may not benefit as much from an impersonal writing style as extreme reviews in reader perceived helpfulness. Therefore, review extremity and linguistic style may have an interactive effect on review helpfulness. We test:

H2(c). Review extremity moderates the effect of linguistic style on review helpfulness. Extreme reviews benefit more from an impersonal writing style than those of moderate opinions.

Affective content is subjective by nature. Consumers tend to be more skeptical of subjective than objective claims (Ford et al. 1990). An impersonal writing style may reduce consumer skepticism by eliding the writer presence and bringing an objective tone. Thus, the level of affective content of a review may moderate the effect of linguistic style on review helpfulness. We test:

H2(d). The level of affective content of a review moderates the effect of linguistic style on review helpfulness. Reviews of a higher level of affective content benefit more from an impersonal writing style than those of a lower level of affective content.

Figure 1 provides our research model and summarizes the above hypotheses.

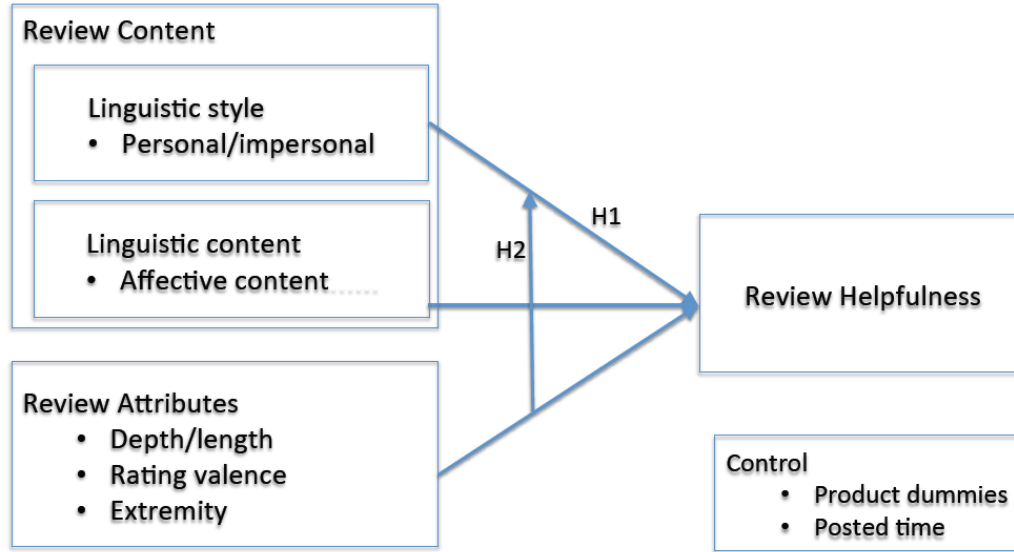


Figure 1. Research Framework – Impact of Linguistic Style on Review Helpfulness

Methodology

Online reviews for two product categories of TV and printer were collected from Amazon.com. TV and printer are two widely purchased and successful product categories in e-tailing. Their product reviews are a good alternative data source comparable but different to book reviews that most prior studies on online reviews focus on. We randomly selected 30 printers, out of the total of 58 laser printers listed, and 30 TVs, out of the 100 best sellers. All reviews available for the selected products were collected using a web crawler program, resulting in a sample of 20,997 reviews. The gathered data for each review instance include: review rating, review date, review title, review content, number of helpful vote, and number of total vote.

To measure the linguistic content and linguistic style of reviews, the LIWC program was used. As a well-known, reliable psychometric tool, LIWC provides text analysis based on its dictionary of almost 6,400 words, word stems, and select emoticons. It assesses content features of a given text by calculating the ratio of a pre-defined set of words in the dictionary to the total word count. The validity of LIWC analysis has been confirmed in more than 100 studies in various text analysis scenarios (Ludwig et al. 2013; Pennebaker et al. 2015).

To test hypotheses H1 (i.e. the effect of linguistic style on review helpfulness), we examine the following:

$$Help_{ip} = C + \alpha_1 \cdot Pstyle_{ip} + \beta_1 \cdot Length_{ip} + \beta_2 \cdot Rating_{ip} + \beta_3 \cdot Extremity_{ip} + \beta_4 \cdot Affect_{ip} + \beta_5 \cdot Time_{ip} + \sum_{p=1, \dots, 59} \delta_p + \varepsilon_{ip} \quad (1)$$

where $Help_{ip}$, a common measure of review helpfulness in the literature (Karimi and Wang 2017), is the percentage of helpful votes in total votes for review i of product p , with value 0 if receiving no vote; C is the constant; $Pstyle_{ip}$ is the level of personal linguistic style of a review measured by the ratio of first person pronoun count (provided by LIWC) to total word count in a review; $Length_{ip}$ is the review length measured by its word count; $Rating_{ip}$ is the review rating valence; $Extremity_{ip}$ is the review extremity with the value of 1 for reviews of rating 1 or 5, and 0 otherwise; $Affect_{ip}$ is the level of affective content in a review measured by the ratio of the affective word count (provided by LIWC) to total word count of a review; $Time_{ip}$ is the number of days since the posting date of a review; δ_p is the fixed effect for product p . α denotes the parameters of variables under study and β denotes that of control variables. The estimation of α_1 is used to evaluate H1.

To test hypotheses H2 (i.e. the interaction effect of the linguistic style and review attributes on review helpfulness), we examine the following:

$$\begin{aligned}
 Help_{ip} = C + \alpha_1 \cdot Pstyle_{ip} + \alpha_2 \cdot Pstyle_{ip} \cdot Length_{ip} + \alpha_3 \cdot Pstyle_{ip} \cdot Rating_{ip} + \alpha_4 \cdot Pstyle_{ip} \\
 \cdot Extremity_{ip} + \alpha_5 \cdot Pstyle_{ip} \cdot Affect_{ip} + \beta_1 \cdot Length_{ip} + \beta_2 \cdot Rating_{ip} + \beta_3 \\
 \cdot Extremity_{ip} + \beta_4 \cdot Affect_{ip} + \beta_5 \cdot Time_{ip} + \sum_{p=1, \dots, 59} \delta_p + \varepsilon_{ip}
 \end{aligned} \quad (2)$$

The estimations of α_2 , α_3 , α_4 and α_5 are used to evaluate H2(a), H2(b), H2(c) and H2(d), respectively.

Results and Discussions

Table 1 reports the descriptive statistics, including mean and standard deviation for all variables and their Pearson correlation coefficients. As shown in Table 1, the average helpfulness measure is 0.30; the first person pronouns consist of 4% of review words on average; the average review length is about 74 words in this sample; the average review valence is 4.2 out of 5; and 60% of reviews are of extreme rating 1 or 5; the average affective words consist of 12% of total review words on average.

	Mean	S.D.	$Help_{ip}$	$Pstyle_{ip}$	$Length_{ip}$	$Rating_{ip}$	$Extremity_{ip}$	$Affect_{ip}$	$Time_{ip}$
$Help_{ip}$	.30	.43	1						
$Pstyle_{ip}$	.04	.04	.03***	1					
$Length_{ip}$	73.92	115.97	.34***	.06***	1				
$Rating_{ip}$	4.20	1.26	-.13***	.02**	-.17***	1			
$Extremity_{ip}$	.60	.46	-.07***	.03***	-.13***	.35***	1		
$Affect_{ip}$	.12	.17	-.22***	-.23***	.28***	-.23***	.13***	1	
$Time_{ip}$	671.21	630.34	.24***	.07***	.24***	-.07***	-.04***	-.24***	1

* $p < .10$; ** $p < .05$; *** $p < .01$

Table 1. Descriptive Statistics and Correlations of Variables

We estimate 6 models: model 1 is based on equation 1 to test H1, and models 2 to 6 are based on equation 2 to test H2(a), H2(b), H2(c) and H2(d). The regression results are reported in Table 2. All models achieve a good fit with adjusted R squared values ranging from .15 to .21. The maximum variance inflation factors (VIF) range from 4.29 to 4.32, below the cut-off value of 5. Multicollinearity is not a concern.

Equations	1		2				
	(1)	(A)	(2)	(3)	(4)	(5)	(6)
$Pstyle_{ip}$	-.22***	.15**	-.31***	-.28***	-.26***	-.26***	-.36***
$Pstyle_{ip} \cdot Length_{ip}$			-.00				-.00
$Pstyle_{ip} \cdot Rating_{ip}$				.22***			.17***
$Pstyle_{ip} \cdot Extremity_{ip}$					.53***		.41***
$Pstyle_{ip} \cdot Affect_{ip}$						-.63*	-1.43***
$Length_{ip}$	.01***	.01***	.01***	.01***	.01***	.01***	.01***
$Rating_{ip}$	-.02***	-.02***	-.02***	-.02***	-.02***	-.05***	-.02***
$Extremity_{ip}$	-.00	-.00	-.00	-.00	-.00	-.00	.00
$Affect_{ip}$	-.32***		-.35***	-.35***	-.35***	-.35***	-.35***
$Time_{ip}$	.00***	.00***	.00***	.00***	.00***	.00***	.00***

Product _p	Fixed effect	Fixed effect	Fixed effect	Fixed effect	Fixed effect	Fixed effect	Fixed effect
N	20,997	20,997	20,997	20,997	20,997	20,997	20,997
Adj. R ²	.21	.15	.21	.21	.21	.21	.21
Max VIF	4.32	4.29	4.32	4.32	4.32	4.32	4.32

***p < .01; **p < .05; *p < .10;

Table 2. Regression Results

Our results suggest that linguistic style is an influential factor affecting perceived review helpfulness and readers are in favor of a more impersonal style than a personal one. Shown in model 1 and all other models with additional variables, the relationship between $Pstyle_{ip}$ and $Help_{ip}$ is significantly negative, indicating that the personal writing style featuring more first person pronouns reduces perceived review helpfulness. That is, readers consider reviews written in an impersonal style to be more helpful than those with a personal style. H1 is strongly supported.

H2(a), H2(b), H2(d) and H2(d), i.e. the interaction effect of the linguistic style with review attributes, are tested separately under models 2 to 5. To determine whether the findings hold when they are jointly tested, we pool all interaction terms in analysis and report the results under model 6. Inferences drawn from individual hypothesis testing (i.e. models 2 to 5) and the pooled test (i.e. model 6) are consistent.

The parameter estimation of the interaction term $Pstyle_{ip} \cdot Length_{ip}$ in models 2 and 6 is insignificant, indicating that the effect of the linguistic style on review helpfulness is not moderated by review length. H2(a) is not supported. The parameter estimation of the interaction term $Pstyle_{ip} \cdot Rating_{ip}$ in models 3 and 6 is significantly positive, indicating that review rating moderates the effect of the linguistic style on review helpfulness. Reviews of lower valence benefit more from an impersonal style than those of higher valence. H2(b) is supported. The parameter estimation of the interaction term $Pstyle_{ip} \cdot Extremity_{ip}$ in models 4 and 6 is significantly positive, indicating that review extremity moderates the effect of the linguistic style on review helpfulness. However, in contrast to H2(c), which hypothesizes that reviews of extremity benefit more from an impersonal writing style than those of moderate opinions, the positive parameter estimation suggests that moderate reviews benefit more from an impersonal writing style. H2(c) is partially supported. The parameter estimation of the interaction term $Pstyle_{ip} \cdot Affect_{ip}$ in models 5 and 6 is significantly negative, indicating that the level of affective content of review moderates the effect of the linguistic style on review helpfulness. Reviews with a higher level of affective content benefit more from an impersonal writing style. H2(d) is supported. The hypotheses testing results are summarized in Table 3.

NO.	Hypothesis	Testing Results
H1	Online product reviews written in an impersonal linguistic style are perceived to be more helpful than those written in a personal style.	Supported
H2(a)	Review length moderates the effect of linguistic style on review helpfulness. Shorter reviews benefit more from an impersonal writing style than longer ones.	Not supported: insignificant effect
H2(b)	Review valence moderates the effect of linguistic style on review helpfulness. Reviews of lower valence benefit from more an impersonal writing style than those of higher valence.	Supported
H2(c)	Review extremity moderates the effect of linguistic style on review helpfulness. Extreme reviews benefit more from an impersonal writing style than those of moderate opinions.	Partially supported: significant, but opposite effect
H2(d)	The level of affective content of a review moderates the effect of linguistic style on review helpfulness. Reviews of a higher level of affective content benefit more from an impersonal writing style than those of a lower level of affective content.	Supported

Table 3. Results of Hypotheses Testing

We want to highlight the importance of controlling for the linguistic content variable when studying linguistic style. Shown in model (A), when $Affect_{ip}$ is not controlled, the parameter estimation of $Pstyle_{ip}$ is significantly positive, opposite to the result of model 1 that controls $Affect_{ip}$. This indicates the association of linguistic style and linguistic content, often found in text writing. For example, writers often adopt a linguistic style that complements the linguistic content they write. Therefore, it is important to separate the effect of linguistic style from that of linguistic content by controlling the latter.

We perform various robustness checks to verify our findings. For example, we include an additional variable, the ratio of impersonal pronoun (e.g. it, it's, those) count to total word count, to control for their potential effect on the level of personal style of reviews. We calculate the daily helpfulness (i.e. total helpful votes divided by the number of days of exposure) as an alternative measure for review helpfulness. We exclude reviews with zero or small numbers of total votes (i.e. those with less than three or five total votes), and repeat the analysis. The results remain consistent. In addition, because H2(a) is not supported, we further explore the potential moderating role of review length by conducting subsample analysis on reviews of various characteristics. For example, we divide the sample to two subsamples of equal size, one with longer and the other with shorter reviews. We test the interaction effect of writing style and review length in each subsample. In general, the results remain consistent and no significant interaction effect is found with these subsamples.

Conclusions and Discussions

Linguistic style and linguistic content are two important aspects of a message's content. The emerging line of research that examines the content of online reviews has focused on the linguistic content aspect, but largely ignores the linguistic style and its effect. The few that inquire into the linguistic style focus on linguistic style match between a content and its interest group, but not specific linguistic style.

This research fills in the gap by studying the impact of linguistic style of personal vs. impersonal writing on the perceived helpfulness of online reviews. Personal and impersonal writing can enhance text communication and persuasion in different ways. Personal writing features writer presence, thus can be more experience-sharing oriented and convey a higher sense of writer-reader interaction. Impersonal writing, on the other hand, is considered to be more objective, thus credible. Different contexts may favor dissimilar style of writing.

Our results show that for online reviews, an impersonal writing style can enhance perceived review helpfulness. The rationale may largely lie in the quality, reliability and credibility concerns that individuals have in relation to reviews and online information. Findings also suggest that the effect of the linguistic style on perceived review helpfulness is moderated by review attributes, including valence, extremity and level of affective content, but not by review length. Reviews written in impersonal style are more helpful when the reviews are of moderate opinion, lower valence and higher affective content.

An interesting finding is the moderation effect of review extremity on the impact of linguistic style to review helpfulness. The effect revealed from data analysis is opposite to our initial theoretical proposition. While it is theorized in H2(c) that extreme reviews benefit more from an impersonal writing style than moderate ones, the effect revealed from data analysis is that moderate reviews benefit more from an impersonal writing style than extreme ones. This result needs further understanding and investigation. Potential causes may lie in the complicated reviewer opinion embedded in and perceived credibility of moderate online reviews. Moderate reviews involve more complicated scenarios of reviewer opinions than extreme reviews. Extreme reviews are of strong opinions with one-sided arguments. Comparatively, moderate reviews often offer two-sided arguments, and the reviewer's opinion can be either truly moderate (indifferent), or a result of positive and negative opinions cancelling each other (ambivalent) (Mudambi and Schuff 2010). Also, past literature suggest that while two-sided arguments are generally considered to be more credible or favorably, conditions exist where they are considered less credible (Mudambi and Schuff 2010).

This research offers both theoretical and managerial contributions. Theoretically, this is the first study, to the best of our knowledge, that examines the linguistic style of personal vs. impersonal writing in the online review context. The research not only confirms the importance of linguistic style in communication effectiveness, thus directs future research attention to this domain, but also offers the first insights on

specific linguistic styles. While the theory offers two-sided arguments on each style's value, this study clearly answers the question which linguistic style is more beneficial in the online review context. With this knowledge, business managers can coach and/or nudge review contributors to write more helpful reviews by offering them writing guidelines in occasions such as first review contribution or through automatic tools such as artificial intelligence or pop-up windows. Offering examples of impersonal reviews, as a best practice, can encourage such writing style. In addition, review platforms can incorporate linguistic style detection features to identify and recommend helpful reviews.

This research has several limitations and offer further research directions. Specifically, it focuses on review attributes and contents, and does not discuss other potentially relevant factors and issues, such as diversity of reviewers, cultural implications, and review authenticity. Inquiring into these factors and issues can further enhance our understanding on online review helpfulness and its business implications. For example, reviewers with various characteristics may write different styles of reviews, thus there is an underlying relationship between reviewer and review attributes/contents. Understanding this relationship may offer further insights on guiding reviewers on how to write more helpful reviews. Capturing reviewers and readers' characteristics can also enable further research to understand the cultural implications on perceived online review helpfulness. In addition, this research does not consider and discuss the review authenticity issue. Fake reviews can deliver wrong information and mis-guide readers. The better fake reviews are written (i.e. the higher the perceived helpfulness), the more damage they make. Thus identifying fake reviews is a critical task for online review platforms (Mukherjee et al. 2012).

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