Persuasion and Culture: Individualism—Collectivism and Susceptibility to Influence Strategies

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Abstract. Personalizing persuasive technology increases their efficacy at influencing the desired behavior change. This paper explores how the responsiveness to Cialdini's six persuasive strategies (authority, reciprocity, scarcity, liking, commitment, and consensus) vary by cultural background. The results of a large-scale study of 335 participants suggest that individualists and collectivists differ significantly with respect to their susceptibility to the strategies – with collectivists being more susceptible to most of the strategies. Some strategies are more suitable for persuading one cultural group than the other. Finally, the results show that irrespective of culture, some strategies are more persuasive overall and therefore more likely to influence participants from both cultures.

Keywords: Persuasion, personalization, persuasive technology, persuasive strategies, culture, Cialdini, individualist, collectivist, influence strategy, susceptibility, tailoring.

1 Introduction

Persuasive Technology (PT) aims to bring about desirable change by shaping and reinforcing behavior, attitude, and thoughts about an issue, action, or object [8] using various persuasive strategies. Persuasive strategies are techniques that can be employed in PTs design to motivate behavior and/or attitude change. Research has shown that individuals can be motivated to perform desired behaviors using various persuasive strategies [6, 8, 14, 20, 22, 26]. As a results, over the years, several persuasive strategies that can be employed in promoting desired behavior change has been developed, for examples see [6, 8, 20]. Considering the large number of persuasive strategies in existence, how to employ these strategies to effectively motive desired behavior change has attracted researchers' attention. In line with this, research has shown that personalizing the strategies can increase their efficacy at motivating behavior change in various domains.

In choosing approaches for group-based personalization, research has shown that culture is a reliable characteristic [17, 28]. Research has also established gender and age differences in many areas including the perception of different behavioral determinants [25, 28], gameplay and health behavior [24]. However, the effect of culture on the persuasiveness of the six strategies highlighted by Cialdini [6] has not been explored quantitatively.

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This paper explores the relationship between culture (individualist and collectivist) and the six persuasion strategies (authority, reciprocity, scarcity, liking, commitment and consensus) developed by Cialdini [6]. The results of a large-scale study of 335 participants suggest that individualist and collectivist differ significantly with respect to their likelihood of being influenced by the strategies – with collectivists being more susceptible to most of the strategies. Some strategies are more suitable for persuading one cultural group than the other. Hence, culture is a necessary factor to consider when selecting the appropriate persuasive strategy to employ in the persuasive technology design.

The paper contributes to research on ways that persuasive technology can be tailored to various cultural groups by conducting a cross-cultural evaluation of the six persuasive strategies developed by Cialdini with respect to their likelihood of motivating behavior change on people from individualist and collectivist cultural groups. We examine both the intra-cultural (within the same culture) and intercultural (between cultures) differences. Our findings shed light on the appropriateness of each strategy for designing persuasive technology tailored for each cultural group. We highlight the best strategy to employ when designing for each cultural group and the best strategies overall. The findings indicate that culture is a necessary factor to consider when selecting the appropriate persuasive strategy to employ in the persuasive technology design.

2 Background

In this section, we present an overview of the six persuasive strategies developed by Cialdini [4], this is followed by a brief overview of culture and human behavior.

2.1 Persuasive Strategies

Persuasive strategies are techniques that can be employed in PTs to motivate behavior and/or attitude change. Over the years, a number of strategies for persuading people to perform the desired behavior have been developed. For example, Fogg [8] developed seven persuasive tools, and Oinas-Kukkonen [21] built on Fogg's strategies to develop 28 persuasive system design principles.

The six persuasive strategies developed by Cialdini – *Reciprocity, Scarcity, Authority, Commitment* and *Consistency, Consensus* and *Liking* – are among the oldest and most widely employed strategies [4]. The six strategies are:

- 1. **Reciprocity:** People by their nature feel obliged to return a favor and to pay back others. Thus when a persuasive request is made by a person the receiver feels indebted to, the receiver is more inclined to adhere to the request [6].
- 2. **Scarcity:** People tend to place more value on things that are in short supply. This is due to the popular belief that less available options are of higher quality.

- 3. **Authority:** People defer to experts [4]. Therefore, individuals are more likely to comply with a request when it is made by a person or people they perceived as possessing high levels of knowledge, wisdom, or power [7].
- 4. **Commitment and Consistency**: People by their nature strive to be consistent with previous or reported behavior to avoid the feeling of dissonance.
- 5. **Liking:** People can be easily influenced or persuaded by someone they like. Factors such as: similarity, praise, and attractiveness can reliably increase the effectiveness of the liking strategy [4].
- 6. **Consensus:** We often observe the behaviors of others to help us make decisions. This is because "a large majority of individuals are imitators rather than initiators, and therefore make decisions only after observing the behaviors and consequences on those around them [7]."

In summary, empirical evidence shows that people differ in their general susceptibility to persuasive appeals as well as in their response to certain persuasive strategies [9, 14, 15, 23, 27, 29]. Studies have shown that applying inappropriate strategies may be counterproductive – resulting not only to refusal to comply to persuasive attempts, but even leading to adverse changes in behavior [14, 23]. Susceptibility to persuasive strategies can be predicted on the basis of demographic characteristics and personality traits [9, 17, 28, 29]. Similarly, Cialdini et al. [5] showed that the commitment and consistency strategy is only effective for individuals that have a high Preference for Consistency (PFC). Hence, there is a need to investigate for other factors that may influence the effectiveness of the strategies.

2.2 Culture and Human Behavior

Culture plays an influential role in shaping people's attitudes and behaviors [18]. Its effects reflect in almost all areas of human endeavor including the way we interact with technology and how various persuasive technology artefacts influence our behaviors. As a result, there is a growing research interest on various ways of developing persuasive technology to be culturally-appropriate and hence increase their efficacy at motivating the desired behavior change [17, 28].

Recent attempts by Hofstede to investigate empirically the differences in cultures based on the value system shared by various groups identified five finite and crucial cultural dimensions [11], which include: Collectivism versus Individualism, Femininity versus Masculinity, Long-term versus Short-term orientation, Power-distance, and Uncertainty avoidance. At present, much of cross-cultural research has been focused on the individualism and collectivism dimension. Research has shown that the individualism and collectivism dimension accounts for most of the variance in global differences [11, 18, 32]. Thus, in this paper, we rely on these two important and well-researched dimensions: individualism and collectivism to study cultural differences in healthy eating determinants.

A major distinguishing factor between *individualist* and *collectivist* cultural orientation is the relationship that individuals perceive between one's self and the

one's in-groups. In an *Individualist* culture, there are loose ties between individuals and people are expected to look after themselves and their immediate families at the very most. On the other hand, in a *collectivist* society, from birth, people get integrated into strong cohesive groups. The collectivist expects other in-group members to look after them and protect them in exchange for unquestioning loyalty. Moreso, in a collectivist society, group interest outweighs individual interest, and individuals behave to maintain good and tight relationships within the group to avoid loss of face [11, 16, 31].

Hofstede's cultural model has been criticized (e.g., see [12]) due to some limitations of the model, such as the broad and binary classification; however, it is still the most widely referenced cultural model [2, 13]. Recent research has reproduced and confirmed the validity of Hofstede's cultural models as related to individualism-collectivism. For example see [17, 30].

3 Study Design and Methods

To investigate the extend to which cultural variability between collectivists and individualists influence the appeal of persuasive strategies, we adopt the well-established strategies (reciprocity, scarcity, authority, commitment and consistency, and liking) developed by Cialdini [6]. These strategies have been widely employed in various persuasion domain ranging from advertising to health [14]. We examined the effects of cultural differences between Asians and North Americans on their susceptibility the six strategies. We choose Asia and North America as the representative of our collectivist and individualist culturesw respectively because according to many cultural models, they represent two distinct cultural groups. For example, according to Hofstede [11], Asian countries such as India, China, and Japan are highly collectivist while North American countries such as Canada and United State are highly individualists. Again, recent research has confirmed the validity of the Hofstede's cultural classifications [17, 30].

To collect data for our study, we adapted the Susceptibility to Persuasive Strategies Scale (STPS) developed by Kaptein et al. [14]. The items were used to assess participants' susceptibility to Cialdini's six persuasive strategies. The questions were measured using participant agreement with a 7-point Likert scale ranging from "1 = Strongly disagree" to "7 = Strongly agree". The STPS scale has been shown to adequately predict participant susceptibility to individual strategies and the efficacy of the strategies for motivating behavior change in real life [1, 14]. We also included questions for assessing participants' demographic information (such as age, gender, country, and geographical territory).

We recruited participants for this study using Amazon's Mechanical Turk (AMT). AMT has become an accepted method of gathering users' responses [19]. It allows access to a global audience, ensures efficient survey distribution, and high quality results [3, 19]. We followed the recommendations for performing effective studies on the AMT by Mason and Suri [19] and before the main study, we conducted pilot

studies to test the validity of our study instruments. Furthermore, we employed attention questions to ensure that participants were actively considering their answers.

A total of 335 valid responses were included in our analysis. 155 (46%) of our participants are of collectivist culture (Asians) and 180 (54%) are from individualist culture (North Americans). Incomplete responses, responses from participants that are neither from Asia nor North America, and responses from participants who got the attention questions wrong were excluded from this analysis.

4 Data Analyses

We begin our analysis by validating our study instrument. To determine the validity of our survey instrument we performed Principal Component Analysis (PCA) using SPSS. Before conducting PCA, the Kaiser-Meyer-Olkin (KMO) sampling adequacy was determined and found to be 0.79, well above the recommended 0.6. The Bartlett Test of Sphericity was significant at ($\chi^2(105) = 1759.059$, p < 0.0001). These two measures indicate that the data was suitable to conduct factor analysis [10].

Indicator reliability can be assumed because Cronbach's α of the strategies are all higher than the threshold value of 0.7 except for liking and consensus strategies which showed a Cronbach's α of 0.44 and 0.40 respectively. This is acceptable because according to Peter [25], Cronbach's α should be \geq 0.7, but for variables with 2-3 indicator, an $\alpha \geq$ 0.4 is acceptable. The liking and consensus strategies contains 2 indicators each, therefore, Cronbach's α is within the acceptable range of \geq 0.4.

After establishing the suitability of our data, we computed the average score for each strategy and then performed Repeated-Measure ANOVA (RM-ANOVA) with the strategies (reciprocity, scarcity, authority, commitment and consistency, consensus, and liking) as within-subject factors and culture as between-subject factors to explore for significant differences between the collectivist and individualist with respect to their likelihood of being influenced by the six strategies. The analysis was performed after validating our data for ANOVA assumptions, with no violations. When the sphericity assumption was violated, we used the Greenhouse-Geisser method of correcting the degrees of freedom. Following findings of significant effects, we performed post-hoc pairwise comparisons, using the Bonferonni method for adjusting the degrees of freedom for multiple comparisons, to determine the groups that significantly differ from each other.

5 Results

We present the results for the overall persuasiveness of the strategies for the two cultural groups followed by the result showing the effects of culture on the persuasiveness of the strategies.

5.1 Overall Persuasiveness of the Strategies

Our results show significant main effects of strategy type $(F_{4.06,1350.96}=57.968, p\approx.000, \eta^2=.148)$ on the likelihood of influencing respondents from both cultures (i.e., persuasiveness). This means that there are significant differences between the strategies with respect to their perceived persuasiveness overall. Regardless of culture, commitment, reciprocity, and liking emerged as the most persuasive strategy that have the highest likelihood of persuading people from both cultures – (significantly different from all other strategies as shown by the Bonferonni-corrected pairwise comparisons), see Figure 1.

In general, participants from both collectivist and individualist culture perceive all the strategies as persuasive, well above the neutral rating of 3.5, see Figure 1.

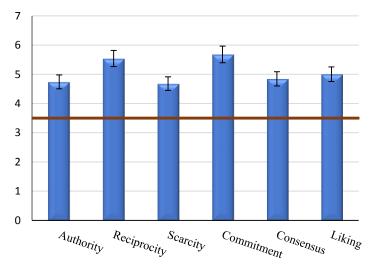


Fig. 1: A bar graph of the mean of individual strategies, showing their overall persuasiveness. Error bars represent a 95% confidence interval.

5.2 Culture Effect

The results also showed a significant main effect of culture on the persuasiveness of the strategies ($F_{1,333}$ =6.46, p≈.011, η^2 =.019). Overall, collectivists are more likely to be influenced by the strategies than individualists, see Figure 2 and Table 1.

5.3 Interaction Between Culture and Strategies

The results of the RM-ANOVA showed a significant interaction between culture and strategy ($F_{4.057,1350.96}$ =12.53, $p\approx.000$, η^2 =.036). Pairwise comparisons showed that collectivist and individualist differ significantly in four out of the six strategies. Specifically, collectivists found four out of the six strategies significantly more persuasive than individualists: authority ($F_{1.333}$ =21.166, $p\approx.000$, η^2 =.060); reciprocity

 $(F_{1,333}=6.334, p\approx.012, \eta^2=.019)$; liking $(F_{1,333}=12.087, p\approx.001, \eta^2=.035)$; and consensus $(F_{1,333}=25.188, p\approx.000, \eta^2=.070)$. Scarcity is the only strategy that individualists found more persuasive than the collectivists, see Figure 2 and Table 1.

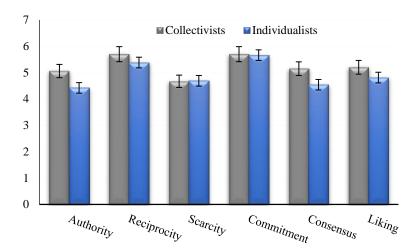


Fig. 2: Paired mean of individual strategies by cultural group. Error bars represent a 95% confidence interval.

Table 1: Mean and Standard Deviations (SD) for the strategies by cultural groups. Bolded means are significantly different across the cultural group; p<.05.

N = 335							
Strategies	Authority	Reciprocity	Scarcity	Commitment	Consensus	Liking	
	mean(SD)	mean(SD)	mean(SD)	mean(SD)	mean(SD)	mean(SD)	
Collectivists	5.06(1.14)	5.70(1.11)	4.67(1.40)	5.70(1.13)	5.15(1.08)	5.20(0.97)	
Individualists	4.42(1.38)	5.38(1.26)	4.69(1.39)	5.66(1.17)	4.54(1.13)	4.81(1.09)	

5.4 Within Culture Comparison of the Strategies

Table 2 summarizes the results of the within cultural comparison of the persuasiveness of the strategies. For collectivist, commitment and reciprocity, emerged as the most persuasive of the strategies. They are followed by liking, consensus, authority, and scarcity listed in decreasing order of persuasiveness. Similarly, for individualist, commitment emerged as the most persuasive of the strategies. It is followed by reciprocity, liking, scarcity, consensus, and authority listed in decreasing order of persuasiveness.

Table 2: Summary of persuasiveness of the strategies. The strategies presented in descending order of persuasive strength (underlined is the highest)

Group	Strategy
Collectivists	Commitment, Reciprocity, Liking, Consensus, Authority, Scarcity
Individualists	Commitment, Reciprocity, Liking, Scarcity, Consensus, Authority
Overall	Commitment, Reciprocity, Liking, Consensus, Authority, Scarcity

6 Discussion and Conclusion

This study investigated the relationship between culture and susceptibility to persuasion strategies. To that effect, we showed that collectivists and individualists vary with respect to their responsiveness to the six persuasive strategies (reciprocity, scarcity, authority, commitment and consistency, and liking) developed by Cialdin. Specifically, individualist and collectivist differ significantly with respect to their likelihood of being influenced by four out of the six persuasive strategies. Interestingly, collectivist perceive four out of the six strategies: authority, reciprocity, consensus, and liking as being significantly more persuasive than individualists. This implies that collectivist can be more easily persuaded using these strategies than the individualist. The explanation for these results can be found within the characteristics of the cultural groups. For example, people from the collectivist culture are more likely to recognize and respect authority figures, hence, they comply with persuasive appeals employing the authority strategy than the individualist. Similarly, although reciprocity is a universal norm, collectivist who are more attuned to in-group identity feel more obliged to give back, hence, they are more likely to be influenced by reciprocity strategy than the individualist culture. Also, the fact that collectivist emphasizes the value of in-group more than individualist, also explains why consensus and liking are more effective for them.

Overall, collectivist are more responsive to all the strategies except the scarcity than individualist. This implies that collectivist are more persuadable than individualist with respect to their susceptibility to the strategies overall.

Scarcity emerged as the only strategy that the individualist perceived as more persuasive than the collectivist because individualist value things that differentiate them and make them unique than collectivist.

In general, regardless of culture, commitment, reciprocity, and liking emerged as the most persuasive strategies that have the highest likelihood of influencing participants from both cultures (significantly different from all other strategies). This is followed by the remaining strategies, consensus, authority, and scarcity (listed in decreasing order of influence). The findings indicate that culture is a necessary factor to consider when selecting the appropriate persuasive strategy to employ in the persuasive technology design.

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