

“We Want the World and We Want It Now”:

Materialism, Time Perspectives, and Problem Spending Tendency of Chinese

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Abstract

Chinese consumers' spending has been expanding rapidly in the past decade, and along with it household and credit card debt. The present research collected evidence to triangulate the contention that materialism is positively related with Chinese's problem spending tendency (PST), and that present- and future-time perspectives interact systematically with materialism to affect PST. A survey of the general population in Macao, China (Study 1; N=239) confirmed that materialism was positively correlated with PST. An interaction between materialism and present-time-perspective intensified the relationship, whereas an interaction with future-time-perspective weakened the relationship. Another survey with a sample of university students (Study 2; N=223) again found positive relationships among PST, materialism, and present-time-perspective, as measured by temporal discount rate. But further exploration showed that PST was only related with temporal discounting among high materialists, but not among low materialists. Study 3 experimentally examined the causal effects of materialism and future-time-perspective on PST. When being primed of an orientation towards materialism (n=33), the participants' planned consumption doubled that of the control group (n=31). A future-time-perspective prime interacted with materialism prime and put a "damper" on participants' planned spending (n=29), compared to their counterparts who were not primed of such a time perspective.

(198 words)

“We Want the World and We Want It Now”:

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Introduction

Chinese shoppers' spending has been expanding rapidly. From 2008, China sustained real consumption growth averaging more than 9%, while the more developed economies such as the U.S. and Japan grew at approximately 1% (World Bank, 2016). In Macao, a Special Administration Region (SAR) of China where the current research was carried out, consumer spending rose by 10 times in a decade (DSEC, 2016). Perhaps not surprisingly, Chinese household debts to GDP have also increased more than three times in a decade, from 11% in 2006 to 39% in 2015 (Bank for International Settlements, in Tradingeconomics, 2016). What is more, in the first quarter of 2015, total debt from credit card borrowing was equivalent to 18% of GDP, compared to only 3.8% of GDP in America (Lockett, 2015).

As the Chinese government is keen to prop up faltering GDP growth by encouraging consumption, and multinational cooperates are eager to capitalize on the Chinese market, this tendency of spending is only going to intensify, to such an extent that a significant portion of Chinese consumers' spending is bordering on being excessive and in the danger of losing control. Indeed, a recent survey shows 6.7% of over 500 university students in China exhibit compulsive buying patterns, in that they experience impairment of impulse control, reduced rationality in money spending, and post-purchase guilt (Li, Unger, & Bi, 2014). In the present research we examine the psychological mechanism that may underlie Chinese's problem spending tendency (PST). We define PST as a tendency to engage in impulsive and excessive spending, showing a higher vulnerability toward developing characteristics of compulsive

shopping such as spending more than they earn and getting in debt (Dittmar, Bond, Hurst & Kasser, 2014). However, individuals who exhibit PST may differ from patients diagnosed of compulsive buying in that buying is not functionally impairing, nor do they suffer from intense mood swing, such as from extreme exhilaration to tremendous guilt.

Materialism

Past research has shown that materialism is closely related to excessive shopping and compulsive buying (Dittmar et al., 2014). It is probably not a coincidence then that the increasing endorsement of materialistic values in China is riding with the tide of problem spending in the country. Just ten years ago, Schaefer, Hermans, and Parker (2004) examined materialism among adolescents in China, Japan and the U.S., and found that Chinese teenagers endorsed lower level of materialism than American youths. Since then, however, the picture seems to have changed; in recent years, researchers tended to find that Chinese participants endorse higher levels of materialism than their American counterparts (Podoshen, Li, & Zhang, 2010). No large-scale territory-wide research on materialism has been carried out in Macao, but a study with 667 school children from Grade 4 to Grade 11 found that teenagers in high schools were significantly more materialistic than children in elementary schools. They expressed more desire for luxurious goods, and believed more strongly that money will bring them happiness. Furthermore, they also reported significantly more liking of shopping in general and peer-status related consumption in particular (Chan, 2010).

Researchers have documented the many detrimental effects of materialism on personal and social well-being. Of particular relevance to the present research is the

findings that show that individuals who endorse materialistic values tend to have worse money management skills and more debts (Donnelly, Ksendzova, & Howell, 2013), and more gambling problems (Wu, Lai & Tong, 2014). A recent meta-analysis (Dittmar et al., 2014) shows relatively strong positive associations between materialism and compulsive consumption problems, suggesting that materialists have difficulties in holding back their desires for buying, especially when it helps building their status and enhancing their image.

As evidence concerning the relationship between materialism and excessive consumption derives mainly from the industrialized west, the primary aim of the present research was to see if materialism could indeed explain PST among Chinese. Our main hypothesis was that materialism was positively related with PST (Hypothesis 1). We planned to test this hypothesis with both student and non-student samples, to use different measures of PST, and to employ different methods of investigation to triangulate the findings.

Time Perspectives

The meta-analysis by Dittmar and colleagues (2014) showed that materialism was not only positively correlated with excessive shopping, but also with consumption behaviors that have strong hedonistic components, such as smoking and drinking. This suggests a present-oriented focus may underlie all these different consumer behaviors. Indeed, time perspectives, specifically the present-time-perspective (PTP) and the future-time-perspective (FTP), have been found to be important predictors of consumption behaviors. For example, Bergadaa (1990) demonstrated that consumers who adopt a PTP are motivated to improve their present well-being, while consumers who adopt a FTP are motivated to develop oneself.

These two different time orientations have implications on consumer choices as varied as what types of holidays they prefer, and which kinds of housing mortgage packages they take out (Bergadaa, 1990). Similarly, it has been found that consumers become more short-sighted as their time preference for the present become greater. In economic terms, they have a high discount rate for future utility. Thus, in certain cases, it is “rational” for consumers to ignore the long-term consequences of their choices (Finke & Huston, 2003).

As materialism, PTP, and excessive, hedonistic buying all seem to be positively correlated with each other, it raises the question of whether materialism can be empirically differentiated from PTP in terms of its relationship with PST. Hence, we tested a hypothesis that materialism was correlated with PST, and such correlation is *independent* from the effect of PTP (Hypothesis 2). Furthermore, the positive relationship between materialism and PST is likely to be intensified by PTP, as a time perspective that emphasizes the “here and now” may well add to a materialist's desire for consumer goods and prompt them towards excessive consumption. We therefore hypothesized that an interaction between materialism and PTP would increase the strength of relationship between materialism and PST (Hypothesis 3).

On the other hand, a FTP is believed to evolve from motivational goal setting, and is formed by an individual's distant goals. Unlike individuals who adopt a PTP, who are constantly looking for new stimuli and sensations here and now, future-oriented people set goals in the future and develop a range of intermediate projects to achieve these long-term goals (Husman & Lens, 1999). It therefore stands to reason that FTP should have some “damper” effect on materialism's relationship with PST. Hence, we hypothesized that an interaction between materialism and FTP reduced the strength of relationship that materialism had with PST (Hypothesis 4).

The present research

We conducted three empirical studies to test the hypotheses above. Our primary hypothesis – materialism's relationship with PST – was tested in all three studies, whereas the moderating effect of the two time perspectives on the materialism-PST relationship were examined in the two subsequent studies, with Study 2 focusing on PTP and Study 3 on FTP. Study 1 was a survey of the general population in Macao, China, and tested all of the four hypotheses outlined above. This was followed by Study 2 that used temporal discount method to assess the interactive effect of materialism and PTP among university students (i.e., Hypotheses 1 to 3). In Study 3 we utilized the momentary activation of materialism method to experimentally test the causal effect of materialism on PST (Hypothesis 1) and the interactive effect of materialism and FTP on PST (Hypothesis 4).

Study 1**Participants and Procedure**

All participants were recruited from public spaces such as libraries and parks in Macao. Upon giving informed consent, 243 ethnic Chinese adults who normally resided in Macao filled out a self-administered questionnaire without any monetary reward. Four (1.65%) were excluded from the final analyses as they did not give demographic data such as age, gender, occupation, income and marital status. This resulted in a final sample size of 239 participants (139 females, 58.2%), with age ranged from 18 to 59 ($M=30.69$; $SD=12.7$). Most (62.7%) had finished at least part of high school, and 29.7% had some form of higher education. About half (51.1%) were

in full-time employment. More than a third (37.2%) were married, and 32.6% had at least one child.

Measurements

All measures were translated into Chinese by the authors, and then back-translated by independent researchers to ensure the adequacy of the translation.

Materialism. Materialism was measured by the 9-itemed short form of Richins and Dawson's Materialistic Values Scale (MVS, Richins, 2004). The MVS is one of the most widely used measure of materialism, and its validity has been tested in many cross-cultural studies, including those with Chinese individuals (e.g., Ching, Tang, Wu, & Yan, 2016). Participants responded to statements such as *I'd be happier if I could afford to buy more things*, and indicated their agreement on a five-point Likert-style scale from *strongly disagree* (1) to *strongly agree* (5). Cronbach's Alpha is .82 in the present study.

Time perspectives. Given that individuals' present consumption choices and spending decisions can be related to a variety of future goals, we decided to measure time perspectives in a global way, without referring to specific domains such as professional or family lives. We selected Zimbardo and Boyd's (1999) Time Perspective Inventory, and specifically assessed two components: present hedonistic time perspective, and future time perspective. The Present Time Perspective scale (PTP; 15 items) assesses a hedonistic, risk-taking, sensation-seeking attitude towards time and life, while the Future Time Perspective scale (FTP; 13 items) reflects a general orientation towards the future. Participants responded on a 5-point Likert scale from *very uncharacteristic* (1) to *very characteristic* (5) to statements such as *I feel that it's more important to enjoy what you're doing than to get work done on*

time (PTP; Cronbach's $\alpha=.77$) and *Meeting tomorrow's deadlines and doing other necessary work comes before tonight's play* (FTP; Cronbach's $\alpha=.68$).

Problem spending tendency (PST). Edwards's 13-item Compulsive Buying Scale (ECBS; 1993) was used to assess the tendency to spend impulsively and excessively. Respondents rated, on a five-point Likert scale from *strongly disagree* (1) to *strongly agree* (5), how much did they agree with statements such as *I buy things even when I don't need anything*. The continual nature of the scale fits with the conceptualization of PST, in that problem spending occurs progressively from normal spending, and the severity of PST can be assessed as a continuum. Furthermore, the ECBS was recommended for examining issues surrounding compulsive buying among the general, non-clinical population, as we had in the present study (Manolis & Robers, 2008). Indeed, the ECBS demonstrated good reliability in our present sample of general population in Macao (Cronbach's $\alpha=.87$).

Results of Study 1

Bivariate correlation analyses showed that both materialism and PTP were positively correlated with PST ($r=.51, .41, p<.001$), while FTP was negatively correlated with PST ($r=-.21, p=.001$). A partial correlation between materialism and PST that controlled for PTP suggested the relationship materialism had with PST was independent of the influence of PTP, $r=.47, p<.001$.

Apart from education level, all demographic variables, i.e., age, sex, work status, income, marital status, and number of children, were related with PST, with younger participants, females, students, individuals with lower income, those who were not married, and those who had fewer children showing more signs of PST. A multiple regression analysis, with all the demographic variables entered at the first step, and materialism, PTP and FTP entered at the second step, tested the predictive

powers of the three main variables on PST. At first step, the demographic variables accounted for 14.1% of variability in PST, $F(6, 226)=7.33, p<.001$, with sex ($\beta=-.34, p<.001$) and age ($\beta=-.01, p=.05$) as the only two significant variables. At Step 2, with materialism and the two time perspectives, the model predicted 41.1% of the variability, $F(9, 223)=18.99, p<.001$. Sex was still a significant predictor ($\beta=-.37, p<.001$), but not age ($\beta=-.01, p=.36$). Materialism ($\beta=.42, p<.001$) and PTP ($\beta=.27, p<.001$) positively, and FTP negatively ($\beta=-.28, p<.001$) predicted PST. R-square change was significant at .27, $p<.001$ (H1 & 2 supported).

To test for interactive effect of PTP and FTP with materialism, we constructed two new variables: PTP x materialism, and FTP x materialism. PTP x materialism was positively correlated with PST ($r=.57, p<.001$), and so did FTP x materialism ($r=.30, p<.001$). We compared the strength of the correlations using Steiger's Z test (Hoerger, 2013), and found that the correlation that PTP x materialism had with PST was significantly stronger than the one that materialism had with PST, $Z(236)=2.38, p=.02$ (H3 supported). On the other hand, FTP x materialism had a significantly weaker relationship with PST than materialism had with PST, $Z(236)=-3.83, p<.001$ (H4 supported).

Study 2

Study 1 supported the contention that materialism and time perspectives were all significantly related to PST. What was more, the two time perspectives interacted with materialism in systematic ways to either intensify or reduce the strength of relationship that materialism had with PST. The purpose of Study 2 was to replicate the findings of Study 1, with a different sample and a different operationalization of time perspectives. Specifically, we focused on PTP, and the interaction between

materialism and PTP. We used Dittmar and Bond's (2010) adaption of matching technique in a temporal discounting paradigm to measure time perspectives.

A PTP, in the context of consumer spending, is related to the desire to acquire desirable products immediately, rather than to have to wait. This preference relating to the immediacy of outcomes can be captured by a *discount rate*—the amount of compensation an individual expects given the delayed outcome, relative to the initial value. Thus, the discount rate measures the subjective “cost” of delaying immediate gratification. A steeper discounting reflects a higher level of PTP. As such, the present study was set out to test Hypotheses 1, 2 and 3.

Method of Study 2

Participants

A total of 235 students from a large public university in Macao participated in the study. They were all ethnic Chinese who were receiving full-time education at the time of the study. Twelve respondents gave negative discount rate (in that the delayed value was less than the immediate value) and were excluded from all subsequent analyses. Hence the final sample consisted of 223 students (132 females; age ranged from 18 to 25, $M=20.25$, $SD=1.67$).

Materials, Measurements and Procedure

Upon giving informed consent, the participants were presented a hypothetical situation. The description was based on Dittmar and Bond (2010):

Imagine that you win a cash voucher of MOP5,000 [approximately USD625] in a shop that sells clothes and accessories that you really like. Think about all the clothes you could buy.

Now imagine that you could swap this voucher for a (more valuable) voucher from the same shop, but that you would not be allowed to spend it for a week.

The respondents were tasked to indicate how much the bigger voucher had to be worth so that they would not care whether they got the MOP5,000 voucher now or the bigger voucher in a week. Afterwards, they answered questions on the MVS (Richins, 2004; $\alpha=.81$) and ECBS (Edwards, 1993; $\alpha=.89$).

Discount rate was calculated, according to a standard formula (e.g., Benzion, Rappoport, & Yagi, 1989), as

$$r = (v_d/v_o)^{1/d} - 1$$

where v_o is the value of the voucher initially presented to the respondent, v_d is the value of the voucher claimed by the respondent in compensation for the number of days of delay (d).

Results of Study 2

There was no significant gender difference in materialism, discount rate, and PST, $F(3, 212)=2.11, ns$. Materialism was positively correlated with PST, $r=.34, p<.001$ ($r=.32, p<.001$ after controlling for discount-rate), and so did discount rate, $r=.20, p=.004$ (H1 & H2 supported). The product of discount rate and materialism (D x materialism) was also positively correlated with PST, $r=.25, p<.001$, but the strength of correlation was not significantly stronger than that between materialism and PST, $Z(213)=1.14, n.s.$, hence rejecting Hypothesis 3.

In an attempt to understand further the interaction among materialism, discount rate, and PST, we divided participants into low materialists ($n=105$) and high materialists ($n=111$) by using a median split (3.861) based on their MVS scores.

Results show that for high materialists, discount rate was significantly correlated with PST, $r=.27$, $p=.004$, but such relationship was not present among the low materialists, $r=.11$, $p=.25$. In other words, it seemed that PTP did not significantly strengthen the materialism-PST relationship as we hypothesized and found in Study 1, but instead materialism moderated a PTP-PST relationship. We return to this point in the general discussion.

Study 3

Studies 1 and 2 showed that materialism was positively correlated with symptoms of problem spending, as measured by ECBS (Edwards, 1993). What remained to be tested was if this relationship could be replicated using a behavioral measure. As we define PST as excessive spending that may lead to negative future consequences such as spending more than one's earning and getting in debt, in Study 3 we adopted a “balance-sheet” type of PST measure – recording how much participants plan to spend in relation to their monthly earning.

A small but steadily growing literature on the momentary activation of materialism (see Kasser, 2016, for a review) demonstrates that materialistic orientation is present, at least to some extent, in all people. An evolutionary perspective of materialism, that is, to own and collect material possessions is an innate need of humans to enhance fitness (Rose & Colon, 2009), also supports this contention. As such, even though an individual may not place a high priority on materialistic values at a dispositional level, these values are nonetheless present within their psyche, and therefore can be momentarily activated and should influence that individual's behavior soon after activation. Indeed, Ku and colleagues have found

that not only a “state materialism” can be primed among Chinese, but that this state materialism also affect subsequent attitudes and behaviors as varied as academic work and environmental protection (Ku, Dittmar, & Banerjee, 2014; Ku & Zaroff, 2014). In the present study we therefore employed priming as a means to examine the *causal* relationship between materialism and PST.

Furthermore, we attempted to build on Study 1 and tested the damper effect of FTP on materialism-PST relationship experimentally. Our research question was: if participants indeed exhibit more problem spending tendency when primed of state materialism, will a future-oriented time perspective in the form of a long-term plan decrease this tendency? In other words, the present study was designed to test Hypotheses 1 and 4.

To establish the external validity of the balance-book style behavioral measure of PST that we used in the present study, prior to the experiment, we surveyed 73 female students about their monthly income and the amount of money they typically spend on buying non-daily necessities items per month. We also asked these students to imagine a hypothetical scenario in which they had a full-time job with a salary of MOP10,000 (which was the same amount as used in the experiment) and to indicate the maximum amount they would spend on shopping each month. These students were used as a comparison group. Since participants in the control group did not receive any priming, their spending behavior in the experiment should be similar to the comparison group's spending in real life, if the PST behavioral measure used in the experiment was externally valid. Hence, the comparison group's monthly spending and hypothetical spending were to be compared with those of the control group as a form of validity check. The mean and standard deviation of this group's

hypothetical spending was also used to conduct the power and sample size analysis for the experiment.

Methods of Study 3

Participants

Ninety-three female students of an introductory psychology course in a large public university in Macao participated in the study (Age range=18 to 21; $M=19.16$, $SD=.89$) in exchange for course credits towards research participation. Thirty-one were in the control condition, 29 in materialism+FTP condition, and 33 in materialism-only condition.

Procedure, materials, and measures

The experiment was conducted in groups of 10 to 20 in an AV-equipped classroom in the university. The participants were shown, on the projected screen with pictures and text, a hypothetical scenario. In the materialism-only condition, participants were to imagine that they were working as an assistant fashion magazine editor, and they were to choose three photos from 20 shootings of celebrities in their luxurious residence, wearing the latest designer outfits, for the coming issue of the magazine. Twenty photos were then shown on the screen and participants indicated their preferences in an answer booklet.

The photos were chosen with an aim to prime the participants of materialistic values of money, image and popularity. Seventy-two students participated in a pilot test and viewed the same photos prior to the conduction of the present study. Their orientation towards materialism was measured before and after viewing these photos. Paired-sample T-test showed a significant increase in their materialistic orientation

after viewing the photos, $t(71)=-2.26$, $p=.03$, demonstrating the adequacy of the photos as priming materials for materialism.

After viewing photos, participants were told they had now received their salary of MOP10,000, and were asked if they would do some shopping (PST behavioral measure). Ten items of luxurious consumer goods, with price tags ranging from MOP700 (Channel No. 5 perfume) to MOP15,000 (Louis Vuitton handbags) were shown. Before participants made their choices, they were also told that if they did not have enough money for buying the items they wanted, they could put the remaining amount on credit cards.

The materialism+FTP condition followed the exact same procedure, except in the beginning participants were asked to imagine, in addition to working for a fashion magazine, that they were working towards earning a promotion and a place in a one-year programme for fashion editors in Paris (FTP manipulation).

The control condition also used the same procedure, except that participants watched twenty photos of healthy party food for children. Afterwards, they were told the same thing about the salary, shown the same 10 consumer items, and asked the same question of whether they would like to buy the items.

Last of all, participants filled in a short questionnaire that contained the short form of MVS (Richin, 2004; Cronbach's $\alpha=.79$, $.69$ and $.85$ for the control, materialism+FTP, and materialism conditions respectively), scales on other values that were not used in the present study, a question about the importance of saving, and demographic questions.

Results of Study 3

Manipulation and measure validity check

The experimental manipulation was successful in priming state materialism among participants of the two experimental sessions, as shown by their significantly higher scores on the MVS ($M=4.00$, $SD=.50$; $M=4.04$, $SD=.78$ for the materialism+FTP group, and the materialism only group respectively), compared to the control group ($M=3.18$, $SD=.63$), $F(2, 90)=17.06$, $p<.001$. Participants in the three conditions also rated the importance of saving for the future differently ($M=3.23$, $SD=.56$; $M=2.76$, $SD=.69$; $M=2.36$, $SD=.70$ for the control group, the materialism+FTP group, and the materialism only group respectively), $F(2, 90)=13.95$, $p<.001$, suggesting that FTP manipulation was successful.

The 73 students we surveyed (i.e., the comparison group) reported spending approximately 30% of their monthly income on shopping for things that are not daily necessities. If they were earning a monthly salary of MOP10,000, they believed they would not spend more than MOP2,564 ($SD=1,010$) on shopping. This was very similar to the spending pattern of the control group, who spent 30% (i.e., $M=\$2,901$, $SD=\$4,290$) of their \$10,000 “salary” in PST behavioral measure, $t(31.43, \text{equal variance not assumed})=-.80$, ns . In other words, the spending decision made by the control group was similar to that of other students, both in real life and in a hypothetical situation, hence giving support to the external validity of the PST behavioral measure.

Primary analyses

The three groups' decisions about spending money on luxurious consumer items were significantly different from each other, $F(2, 90)=7.21$, $p=.001$ (Figure 1). Planned contrasts showed that the control group spent significantly less money than

the experimental groups, $t(90)=-3.07$, $p=.003$, $r=.31$, supporting the contention that when participants were primed of state materialism, their spending tendency also increased (H1 supported). The two experimental groups also differed from each other, with the materialism+FTP group spending significantly less than the materialism only group, $t(90)=-2.12$, $p=.04$, $r=.22$, supporting the notion that FTP had a somewhat damper effect on the influence of materialism on PST (H4 supported). In addition, 20% of the participants in both of the experimental groups spent more than they earned, and intended to use credit cards to cover the excess amount.

General Discussion

We set out to see if materialism could explain Chinese's problem spending tendency. Results from three empirical studies triangulated the contention that materialism was positively, and independently, related to PST, be it measured by established compulsive buying scale (Studies 1 and 2), or behavioral measure that adopts a balance-sheet approach to spending in relation to earning (Study 3). When materialism was activated, it had a strong causal effect on participants' spending behavior, so much so that they spent more than 60% of their supposed monthly income on purchasing non-essential, luxurious consumer goods. A substantial portion of them (20%) even spent more than what they “earned”, and intended to use credit cards to cover the excess.

The findings clearly illustrated the important role materialism plays in PST. With the rise of materialism in Chinese societies, it is plausible that problem spending tendency will become an increasingly important societal problem. Given that values are predictive of not just consumer spending but a host of other behaviors such as problem gambling (Wu et al, 2014) and environmental protection (Ku & Zaroff,

2014) among Chinese, the importance of reducing materialism cannot be over-emphasized.

Three strategies have been suggested, and tested, to reduce materialism: 1) activating and encouraging values that have been shown to be opposite to materialistic values, such as values that focus on helping others and the community; 2) reducing the extent to which individuals are exposed to and affected by materialistic messages; and 3) helping people to feel less insecure and threatened (see Kasser, 2016, for a detailed discussion). As far as we are aware, no research has been done with Chinese participants to test the practicality and effectiveness of these strategies. However, some longitudinal evidence suggests Chinese adolescents use materialism as a compensation mechanism, but end up getting caught in the viscous cycle of ever-increasing materialism and yet ever-diminishing well-being (Ku, 2015). If this is indeed one of the pathways that materialism develops among young Chinese, then it would stand to reason that increasing their sense of well-being should help to decrease materialism.

We hypothesized that time perspectives moderated the materialism-PST relationship. Results clearly showed that FTP had a “damper” effect, whether it was in the form of a significantly weaker correlation with PST (Study 1), or a more “reeled in” spending (Study 3). The core idea of FTP is very much in line with traditional Confucius teachings of virtue: “trying to acquire skills and education, working hard, not spending more than necessary, being patient, and persevering” (Hofstede & Bond, 1988, p.8). Future research, preferably of cross-cultural nature, is needed to examine whether the internalization of traditional Chinese values has a direct effect on individuals' spending behaviors, or that a more general, culturally

non-specific time perspective can exercise the exact same effect on participants of different cultural origins.

Apart from cultural values, construal level theory may provide another fruitful pathway for future research to examine the interactive relationship among materialism, time perspectives and PST. Construal level theory proposes that there are two different ways of thinking of the same activity – watching TV as being entertained (goal-relevant, high level of construal), vs. watching TV as sitting on the couch flipping through channels (goal-irrelevant, low level of construal), and that low level of construal will be discounted much more steeply over time delay than high level of construal (Trope & Liberman, 2000). As positive outcomes are usually part of people's goals, whereas negative outcomes are often incidental and imposed by circumstances, construal level theory provides an alternative way to understand why some individuals indulge in overconsumption despite negative financial consequences. For example, if an individual sees consumption as a way to increase their social status among their peers (i.e., goal-relevant, high level of construal), then the positive outcome (earning others' admiration and applause) will outweigh the negative outcome of getting into debt (i.e., goal-irrelevant, low level of construal) over time. To combat this tendency one would have to restructure the individual's goal, and by doing so turn consumption into a lower level, goal-irrelevant construal, which will then lose its desirability rapidly over time.

In contrast to FTP, the hedonistic, sensation-seeking PTP was positively correlated to PST on its own. However, its moderating effect on the materialism-PST link was not consistent across studies. We hypothesized that a PTP would intensify a materialist's tendency to spend excessively and impulsively. This was supported in Study 1, but not in Study 2. Instead, we found a moderating effect of materialism on a

PTP-PST link, in that discount rate was positively correlated with PST among high materialists, but not among low materialists. At the moment it is not clear whether the inconsistency is a result of the different samples (general population vs. students), and/or the different measures of PTP (survey measure vs. temporal discounting rate) that we used in the two studies, or that it reflects an actual complexity in the interaction among materialism, PTP and PST. After all, it is not inconceivable that a present-oriented but non-materialistic individual may seek stimuli in activities that do not necessarily involve shopping and spending, but a present-oriented materialist is most likely to look for instant gratification in the form of consumption.

The present research has a number of limitations. First of all, the findings in both Studies 1 and 2 are entirely correlational and self-reported. The experimental design of Study 3 in part helps to elevate the problems, but since the study used an imaginary scenario, whether these results can be generalized to actual behaviors remains to be tested. Also, as Study 3 only recruited female university student, it is not in a position to capture gender or age differences in materialism (Segal & Podoshen, 2013). All these characteristics may limit the generalizability of the results obtained.

Despite the limitations, and the slight inconsistency in the exact process of how PTP may interact with materialism, findings from the three studies paint a clear and coherent picture together. Materialism is closely related to, and perhaps even *causes*, Chinese people's problem spending tendency. While a longer-term, more future-oriented time perspective may buffer the effect of materialism on problem spending, a hedonistic, more present-oriented time perspective may only support that tendency.

References

Benzion, U., Rapoport, A., & Yagil, J. (1989). Discount rates inferred from decisions:

An experimental study. *Management Science*, 35, 270-284.

doi:10.1287/mnsc.35.3.270

Bergadaa, M. M. (1990). The role of time in the action of the consumer. *Journal of*

Consumer Research, 17, 289-302. doi:10.1086/208558

Chan, K. (2010). Growing up in Macao: A study of materialistic values among

children and adolescents. *Academic Research Lecture*, Cultural Affairs Bureau,

Macao SAR, January 20, 2010 Macau.

Ching, T. H. W., Tang, C. S., Wu, A., & Yan, E. (2016). Gender differences in

pathways to compulsive buying in Chinese college students in Hong Kong and

Macao. *Journal of Behavioral Addictions*. Published online first.

doi:10.1556/2006.5.2016.025

Dittmar, H., & Bond, R. (2010). I want it and I want it now: Using a temporal

discounting paradigm to examine predictors of consumer impulsivity. *British*

Journal of Psychology, 101, 751-776. doi: 10.1348/000712609X484658

Dittmar, H., Bond, R., Hurst, M., & Kasser, T. (2014). The relationship between

materialism and personal well-being: a meta-analysis. *Journal of Personality*

and Social Psychology, 107, 879-924. doi:10.1037/a0037409

Donnelly, G., Ksendzova, M., Howell, R. T. (2013). Sadness, identity, and plastic in

over-shopping: the interplay of materialism, poor credit management, and

emotional buying motives in predicting compulsive consumption. *Journal of*

Economic Psychology, 39, 113-125. doi:10.1016/j.joep.2013.07.006

DSEC, Statistics and Census Service, Government of Macao SAR. (2016). *Retail*

Sales Survey. Retrieved June 9, 2016, from:

<http://www.dsec.gov.mo/home.aspx?lang=en-US>

- Edwards, E. A. (1993). Development of a new scale for measuring compulsive buying behavior. *Financial Counseling and Planning*, 4, 67-85.
- Finke, M. S., & Huston, S. J. (2003). Factors affecting the probability of choosing a risky diet. *Journal of Family and Economic Issues*, 24, 291-303.
doi:10.1023/A:1025499322428
- Husman, J., & Lens, W. (1999). The role of the future in student motivation. *Educational Psychologist*, 34, 113-125.
- Hoerger, M. (2013). Z_H: An updated version of Steiger's Z and web-based calculator for testing the statistical significance of the difference between dependent correlations. Retrieved June 6, 2016, from
http://www.psychmike.com/dependent_correlations.php
- Hofstede, G., & Bond, M. H. (1988). The Confucius connection: From cultural roots to economic growth. *Organizational Dynamics*, 16, 5-21. doi:10.1016/0090-2616(88)90009-5
- Kasser, T. (2016). Materialistic values and goals. *Annual Review of Psychology*, 67, 489-514. doi:10.1146/annurev-psych-122414-033344
- Ku, L. (2015). Development of materialism in adolescence: The longitudinal role of subjective well-being among Chinese youths. *Social Indicators Research*, 124, 231-247. doi:10.1007/s112050-014-0787-4
- Ku, L., Dittmar, H., & Banerjee, R. (2014). To have or to learn? The effects of materialism on British and Chinese children's learning. *Journal of Personality and Social Psychology*, 106, 803-821. doi: 10.1037/a0036038
- Ku, L., & Zaroff, C. (2014). How far is your money from your mouth? The effects of intrinsic relative to extrinsic values on willingness to pay and protect the

- environment. *Journal of Environmental Psychology*, 40, 472-483.
doi:10.1016/j.jenvp.2014.10.008
- Li, S., Unger, A., & Bi, C. (2014). Different facets of compulsive buying among Chinese students. *Journal of Behavioral Addictions*, 3(4):238-245.
doi:10.1556/JBA.3.2014.4.5.
- Lockett, H. (2015). Plastic over paper: China's consumers embrace credit cards as regulators rebuff new industry entrants. *China Economic Review*, July 23, 2015.
Retrieved June 3, 2016, from: <http://www.chinaeconomicreview.com/chinas-consumers-embrace-credit-cards-regulators-rebuff-new-industry-entrants>
- Manolis, C., & Roberts, J. A. (2008). Compulsive buying: Does it matter how it's measured? *Journal of Economic Psychology*, 29, 555-576.
doi:10.2466/pr0.102.1.153-165
- Podoshen, J. S., Li, L., & Zhang, J. (2010). Materialism and conspicuous consumption in China: A cross-cultural examination. *International Journal of Consumer Studies*, 35, 17-35. doi:10.1111/j.1470-6431.2010.00930.x
- Richins, M. L. (2004). The material values scale: Measurement properties and development of a short form. *Journal of Consumer Research*, 31(1), 209-219.
doi:10.1086/383436
- Rose, P., & Colon, K. (2009). Materialism: An evolutionary perspective. In F. Saito (Ed), *Consumer Behavior* (pp. 185-196). New York: Nova Science Publishers.
- Schaefer, A., Hermans, C., & Parker, S. (2004). A cross-cultural exploration of materialism in adolescents. *International Journal of Consumer Studies*, 28, 399-411. doi:10.1111/j.1470-6431.2004.00395.x

- Segal, B., & Podoshen, J. S. (2013). An examination of materialism, conspicuous consumption and gender differences. *International Journal of Consumer Studies*, 37, 189-198. doi:10.1111/j.1470-6431.2012.01099.x
- Tradingeconomics (2016). *China Households Dbt to GDP, 2006-2016*. Retrieved June 3, 2016, from: <http://www.tradingeconomics.com/china/households-debt-to-gdp>
- Trope, Y., & Liberman, N. (2000). Temporal construal and time-dependent changes in preference. *Journal of Personality and Social Psychology*, 79, 876-889. doi:10.1037/0022-3514.79.6.876
- World Bank (2016). Household final consumption expenditure per capita growth (annual %). Retrieved on June 9, 2016 at: <http://data.worldbank.org/indicator/NE.CON.PRVT.PC.KD.ZG>
- Wu, A. M. S., Lai, M. H. C., & Tong, K. K. (2014). Internet gambling among community adults and university students in Macao. *Journal of Gambling Studies*, 31(3), 643-657 doi:10.1007/s10899-014-9451-8
- Zimbardo, P. G., & Boyd, J. N. (1999). Putting time in perspective: A valid, reliable individual-differences metric. *Journal of Personality and Social Psychology*, 77(6), 1271-1288. doi:10.1037/0022-3514.77.6.1271

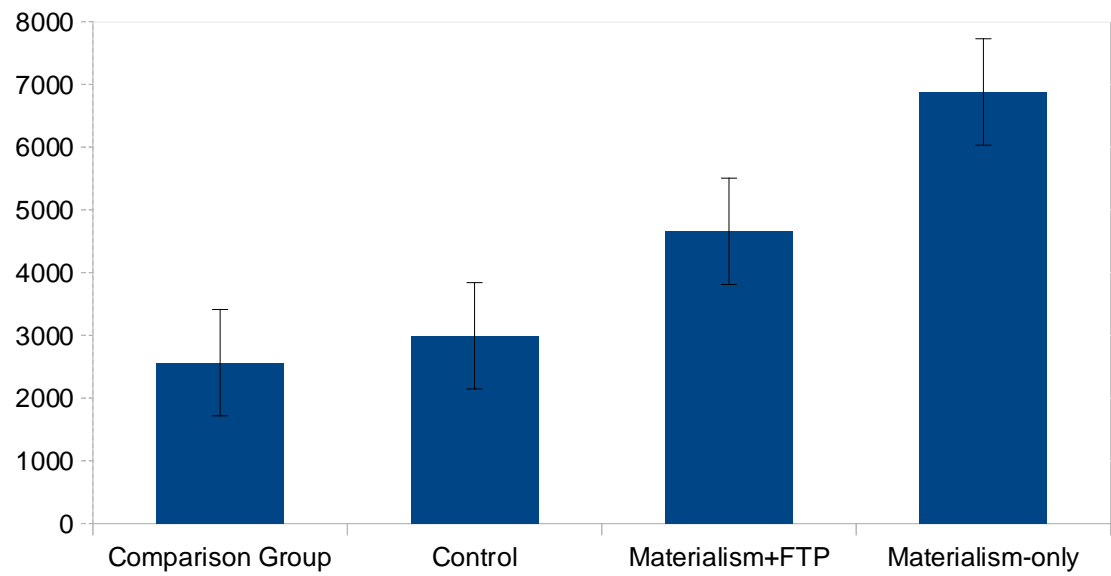


Figure 1. Means (with error bars) of PST measure and the mean estimate of comparison group for monthly spending (Study 3)

Notes. Comparison Group ($n=73$); Control=control condition ($n=31$); Materialism+FTP=materialism and FTP prime condition ($n=29$); Materialism-only=materialism only prime condition ($n=33$).