

This research studies the effect of consumers' lay theories of self-control on their choices of products for young children. The authors find that people who hold the implicit assumption that self-control is a small resource that can be increased over time ("limited-malleable theorists") are more likely to engage in behaviors that may benefit children's self-control. In contrast, people who believe either that self-control is a large resource ("unlimited theorists") or that it cannot increase over time ("fixed theorists") are less likely to engage in such behaviors. Field experiments conducted with parents demonstrate that limited-malleable theorists take their children less frequently to fast-food restaurants, give their children unhealthy snacks less often, and prefer educational to entertaining television programs for them. Similar patterns are observed when nonparent adults make gift choices for children or while babysitting. The authors obtain these effects with lay theories both measured and manipulated and after they control for demographic and psychological characteristics, including own self-control. These results contribute to the literature on self-control, parenting, and consumer socialization.

Keywords: lay theories, self-control, parenting, consumer socialization, social influences

Building Character: Effects of Lay Theories of Self-Control on the Selection of Products for Children

Consider the following scenario, which may be familiar to many parents of young children: It is half an hour before dinner, and your five-year-old asks for some chips and soda. He is also supposed to do his homework, but he asks to watch a cartoon first. How do parents handle this type of request? Some parents act as gatekeepers and regulate consumption, while others follow a laissez-faire policy. Either way, how parents respond to their children's consumption-related requests plays an important role in their socialization as consumers because socialization processes often permeate more through subtle social interaction than purposeful

educational efforts (John 1999). Under parental direction, a child can learn self-control and related skills, such as how to shift attention away from temptation and anticipate negative consequences of succumbing (Darling and Steinberg 1993; Maccoby 1980), and every such decision point is an opportunity to develop a child's self-control.

However, many parents do not take such steps, instead allowing children to indulge themselves more often than not. What determines whether parents, or any concerned adults, engage in behaviors that can improve a child's self-control? One possibility is that responses depend on situational criteria, such as the likelihood of sparking a tantrum and whether the person is in a public place. In this research, we suggest that adults' lay theories of self-control (i.e., their beliefs about the basic amount and extendability of people's self-control) are key predictive factors in their decisions for children. We show that when adults believe that people in general have a limited amount of self-control and that this amount is augmentable over time—that is, "limited-malleable theorists" (Mukhopadhyay and Johar 2005)—they tend to choose products and engage in behaviors that are consistent with the development of children's self-control. In contrast, when adults believe that people in general have unlimited

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stores of self-control—"unlimited theorists"—or that self-control is not modifiable—"fixed theorists"—they tend to make decisions that are inconsistent with the nurturing of children's self-control. This occurs even though these beliefs may be inapplicable to children's self-control, which in general is believed to be limited but modifiable. In what follows, we develop these hypotheses and then present the results of experiments conducted both in the laboratory and with parents intercepted in the field. The findings support the hypotheses and offer insights into the underlying process.

THEORETICAL FRAMEWORK

Self-Control in Young Children

Self-control, or the ability to maintain goal-directed behavior in the face of temptations (Metcalfe and Mischel 1999), is a foundational component of a child's moral development (Berkowitz and Grych 1998). Self-control at a young age is highly predictive of competence across various diverse aspects of adult life, as evidenced by Mischel and colleagues (for an extensive review, see Mischel, Ayduk, and Mendoza-Denton 2003). Mischel and colleagues' program of research studied how children of preschool age respond when faced with a choice between an attractive small item (e.g., a cookie) to be obtained immediately and a larger quantity of the same item to be obtained after a delay (usually 20 minutes). They then followed up with the same children after intervals of several years. They found that young children's ability to delay gratification (reflective of their ability to exercise self-control) predicted Scholastic Aptitude Test scores more than a decade later (Shoda, Mischel, and Peake 1990). Moreover, children who were better able to delay gratification as preschoolers were also described as being more attentive and better able to concentrate, tolerate frustration, and cope with stress as adolescents. Thus, the ability to delay gratification or, more generally, the ability to exercise self-control at a young age appears to be highly predictive of competence in later life. This evidence suggests that the nurturance of children's self-control skills should begin in early childhood.

What do adults think about children's self-control, and how do such beliefs determine their tendency to nurture children's self-control? We conducted a preliminary study to determine (1) adults' beliefs about children's self-control and (2) the effect of these beliefs when called to attention while making a decision for children. Thirty-nine adults (22 of whom have at least one child between the ages of 4 and 5) participated in this survey. They first indicated their agreement, on seven-point scales, with two items pertaining to the amount of children's self-control ("Children aged 4–5 years are limited in their ability to control themselves," and "Beyond a certain point, children aged 4–5 years cannot hold themselves back"), followed by two items pertaining to how much it can be changed ("There is nothing parents can do to change children's self-control," and "Incentives can be used to motivate, and threats or punishments can be used to discourage, but children cannot really change their ability to control themselves"). Next, they read about a scenario involving a demand for junk food before dinner and indicated how likely they were to give in to the demand. The results show that the responses to the first two items averaged were significantly higher than the scale midpoint ($M =$

5.41; $t(38) = 7.97, p < .001$; $Mdn = 5.50$; $SD = 1.11$), suggesting that, in general, people agree that young children have limited self-control. Furthermore, the responses to the next two items averaged were lower than the scale midpoint ($M = 2.29$; $t(38) = -8.45, p < .001$; $Mdn = 2.00$; $SD = 1.26$), indicating disagreement with the statement that nothing can be done to change self-control. Evidently, there is some consensus that children's self-control, though limited, can be improved. Moreover, respondents stated that they were unlikely to give in to the demand for junk food before dinner ($M = 2.54$; significantly lower than the scale midpoint, $p < .001$; $Mdn = 2.00$; $SD = 1.32$). This suggests that if people's beliefs about children's self-control are called to attention when making decisions for children, as they were here, people will be unlikely to indulge them.

However, in contrast to these findings, it is evident that adults are indeed often permissive to indulgence and inattentive to uncontrolled behaviors. Why might this be so? One possibility involves a projection bias—namely, that beliefs other than those pertaining specifically to young children are (inappropriately) used as inputs, leading to decisions that are inconsistent with the nurturing of children's self-control. In this research, we propose that adults' lay beliefs about the self-control of people in general, rather than of children in particular, play a crucial role in influencing their inclination to take actions that may help develop children's self-control.

Lay Theories of Self-Control

Lay theories, or implicit theories, are basic assumptions that ordinary people hold about themselves and their world (Dweck 1996). They have been shown to have a variety of effects in contexts as diverse as goal-directed behavior (Mukhopadhyay and Johar 2005), hedonic adaptation (Novemsky and Ratner 2003), and predicted emotion (Xu and Schwarz 2009). Lay theories pertaining to human attributes (e.g., intelligence, self-control) in particular are "what ordinary men and women believe about the existence and power of individual differences in personality" (Ross and Nisbett 1991, p. 119). People use their lay theories to interpret events and experiences, leading to systematic patterns of behavior. Dweck's program of research (see Dweck 1999), which stands as the main body of work on the behavioral effects of lay theories, draws a distinction between "incremental theorists," who believe that ability and intelligence are malleable quantities that can be improved through effort, and "entity theorists," who believe that these are fixed quantities that cannot be changed. Dweck and Legget (1988) review extensive evidence that demonstrates that when incremental theorists fail a task, they treat failure as a challenge, conclude that they can improve by exerting more effort, and therefore are likely to persist. In contrast, entity theorists attribute their failure to an inherent lack of ability, conclude that they are unlikely to succeed, and therefore tend to give up (Dweck and Legget 1988). In short, the different theories people hold create frameworks that foster different meanings to outcomes and promote different reactions.

Although Dweck's research addresses lay theories of intelligence, there is growing interest in investigating lay theories pertinent to other constructs, such as self-control. Building on Dweck's work, Mukhopadhyay and Johar

(2005) examine the effect of the belief that self-control is a malleable versus fixed resource on personal goal setting and achievement. Furthermore, they argue that in addition to beliefs about the malleability of self-control, people may hold a theory about how much self-control a person typically has. Thus, lay theories of self-control can vary along two theoretically orthogonal dimensions. One pertains to the quantum of self-control: the belief that people in general may have small amounts of self-control (in accordance with Muraven and Baumeister 2000) or large amounts (in accordance with much of Western philosophy; see Descartes [1649] 1996). The other dimension pertains to its changeability over time (fixed for all time versus malleable over time). Thus, Mukhopadhyay and Johar (2005) identify four distinct lay theories of self-control: limited-fixed (small reserves that do not change over time), limited-malleable (small reserves that can be increased over time), unlimited-fixed (large reserves that do not change over time), and unlimited-malleable (large reserves that can be increased even further). They demonstrate that lay theories of self-control can influence behaviors independently of actual self-control; self-rated self-control in their studies does not have any effect on the patterns they observed, and controlling for own self-control does not influence their results. This is because actual self-control refers to a person's actual ability to control him- or herself, whereas lay theory of self-control refers to what a person believes about the self-control of people in general.

The lay theories that Mukhopadhyay and Johar (2005) identify are relevant to the current research because differences in beliefs about the nature of self-control may prompt different inclinations to engage in behaviors that develop children's self-control. Although the referent of these lay theories is "people in general," if they are implicitly held in belief systems (as per Dweck 1996), they may be spontaneously projected onto other subgroups to which they are not necessarily applicable (e.g., children), thus influencing behaviors toward these subgroups. To illustrate, consider a limited-malleable theorist—someone who believes that people tend to have a small reserve of self-control that may increase over time. Such a person is likely to recognize that the amount of self-control available may not be enough to accommodate all demands, so it is useful to gear up the reserves of self-control. This belief, together with the belief that self-control can be improved, may foster a motivation to carry out actions that help develop self-control whenever appropriate (for a similar argument that a belief in a dynamic, malleable attribute orients people toward the goals of developing that attribute, see Dweck 1996). As such, when limited-malleable theorists find themselves in situations in which they can develop self-control, they will be inclined to act in ways that facilitate it. For example, this inclination might be triggered when a child asks a limited-malleable theorist for junk food before dinner, leading the adult to deny the child, thereby taking a small step in the development of self-control. Note that the adult need not be explicitly thinking about training the child's self-control, because the use of lay theories (as with the use of other knowledge that is implicitly held) can be triggered by features of the situational environment without conscious awareness (Bargh 1997). In short, we predict that, whenever appropriate, limited-malleable theorists will be likely to

involve children in behaviors that require self-control and to inculcate an affinity for products that deliver greater value in the long run than in the short run (i.e., "relative virtues"; Wertenbroch 1998).

In contrast to limited-malleable theorists, unlimited-malleable theorists believe that people in general have large reserves of self-control that can be developed further. Presumably, the belief that self-control is improvable will orient these theorists toward the goal of developing self-control. However, the belief that reserves of self-control are already large may lessen the value of further developing these reserves. Moreover, if a decision involves options that can deliver instant gratification (e.g., yielding to the child's demands causes the child to be instantly happy, thus giving the parent a moment's peace), the development of self-control may not be a priority, and the parent may be less likely to deny the child's demands. Therefore, we predict that compared with limited-malleable theorists, unlimited-malleable theorists prefer products that deliver instant gratification over those that deliver a greater long-term value (i.e., "relative vices").

What about fixed theorists? Fixed theorists believe that reserves of self-control cannot be increased over time. In this worldview, the decision of whether to give in to a child's demand is not considered relevant to the development of self-control, and therefore lay theories of self-control should not be brought to bear on the decision. This is likely to be the case regardless of whether they also hold a limited or an unlimited theory. As a result, we predict that fixed theorists who believe that self-control is a limited versus unlimited resource will not differ in the degree to which they prefer virtues or vices for children.

Summary

We propose that limited-malleable theorists are more likely to engage in behaviors that are consistent with developing children's self-control than unlimited-malleable theorists. Thus, limited-malleable theorists are more likely to make choices that require children to exercise self-control and inculcate an affinity for relative virtues rather than vices. In contrast, limited-fixed and unlimited-fixed theorists should not differ in terms of their choice between virtues and vices. We test these predictions across multiple experiments, including field studies with parents of young children and laboratory studies with nonparent students, and across a range of domains. In Experiment 1, as predicted, we find that parents who are limited-malleable theorists are more likely than unlimited-malleable theorists to restrict unhealthful snacking and fast-food consumption. We replicated this finding in a follow-up study in which we examine parents' choice for educational (versus entertaining) television programs for their children. Experiment 2 extends the investigation to nonparent adults' choices of gifts for children, showing that limited-malleable theorists are most likely to choose gifts that deliver delayed gratification. Experiment 3 pins down the causal role of lay theories by replicating the pattern with lay theories manipulated and by providing relevant process measures. Finally, Experiment 4 demonstrates that self-reported own self-control cannot account for the results.

EXPERIMENT 1: FAST FOOD AND SNACKING ALLOWANCES

The aim of this study was to examine the influence of parents' lay theories on the choices they make for their own children. The domain of investigation was the consumption of unhealthy food—an important issue in its own right. Recently, New York state banned trans fats from all restaurants and mandated the display of calorie information on all food items in fast-food restaurants. This stems in part from growing awareness of the harmful effects of fast food on children. Munoz and colleagues (1997) estimate that as much as half the average child's daily calorie intake is unhealthy, being derived from fat and sugar from junk foods. However, fast foods are tasty and extremely tempting, and young children can hardly resist the temptation. If parents do not impose constraints on children's consumption of fast food, and instead are overly permissive in satisfying their cravings, the development of children's self-control skills may be impaired. Conversely, if parents set controls over children's consumption of fast food, children may gradually pick up the skills of enforcing standards and becoming self-controlled (Dweck 1999; John 1999).

Our basic hypothesis is that limited-malleable theorists are more likely to regulate children's consumption of fast food and therefore are less likely to visit fast-food restaurants with their children than unlimited-malleable theorists, who are less concerned about development of self-control and therefore place a comparatively higher value on instant gratification. We also predict that fixed theorists, regardless of whether they hold a limited or unlimited theory, would be similar in terms of the frequency with which they visit fast-food restaurants with their children.

Method

Research assistants blind to the hypotheses intercepted parents of children between the ages of four and six at malls, playgrounds, and outside nurseries. One hundred eighty-nine responses were collected in Hong Kong and Singapore.¹ Targets were identified visually and pre-screened before being asked to fill out a brief questionnaire. Interviews lasted between five and ten minutes on average. The questionnaire had three sections: an eating habits section, a personality profile, and a set of demographic questions. In the eating habits section, participants indicated how many times each month their child ate at each of three fast-food restaurants—McDonald's, KFC, and Pizza Hut. These three chains are reasonably representative of the fast-food options in Hong Kong and Singapore. For example, in Hong Kong, McDonald's has a share of approximately 80% of the hamburger market, KFC has 75% of the fried chicken market, and Pizza Hut has 80% of the pizza market (Gale Research Inc. 2002). Singapore has a similar pattern of market share distributions. After indicating how often they visited these restaurants, parents estimated how many times every week their child ate each of three types of snack food (ice cream; chocolate or candy; and salty snacks, such as potato chips). Respondents were then presented with the

personality profile questionnaire. This consisted of the List of Values (Kahle 1983), which encompasses a range of personality characteristics (e.g., needs for "sense of accomplishment," "security," and "fun and enjoyment of life") that might influence the dependent variable. This was followed by Mukhopadhyay and Johar's (2005) measures of the two lay theories: "I believe that people are limited in their ability to control themselves" and "I believe that people cannot hold themselves back beyond a point" for the limited/unlimited theory, and "Everyone has a certain amount of self-control, and one can't do much to change this amount" and "People can get incentives and disincentives, but they can't really change their basic self-control" (both reverse coded) for the fixed/malleable lay theory. We assessed all lay theory measures on seven-point scales anchored by "strongly disagree/strongly agree." Finally, the demographic measures collected included age of the child, number of siblings, mother's employment status and working hours, family income, and whether the family employed a domestic helper (a common local practice that may influence child rearing practices).

Results

We constructed separate measures for the monthly fast-food consumption frequency and the weekly snack-food consumption frequency by summing the reported frequencies under each head. Factor analysis on the List of Values explained 58% of the variance, revealing two factors: needs for security (eigenvalue = 3.64) and excitement (eigenvalue = 1.53). We used factor scores for these factors as controls. We averaged the items measuring the limited/unlimited lay theory ($\alpha = .69$) and fixed/malleable lay theory ($\alpha = .67$) to form separate measures of the two theories, which we then dichotomized using median splits.² The two measures were correlated ($r = .16, p < .01$) such that respondents who had more limited lay theories also tended to have more fixed lay theories. The magnitude and direction of this effect are consistent with those that Mukhopadhyay and Johar (2005) observe.

We ran a 2 (lay theory: unlimited versus limited) \times 2 (lay theory: fixed versus malleable) between-subjects analysis of covariance (ANCOVA) on the fast-food consumption frequency with the List of Values factors and the number of siblings and family income as covariates. The analysis revealed significant effects for the number of siblings ($B = -.87, F(1, 181) = 7.07, p < .01$), such that the greater the number of children, the fewer the number of visits to fast-food outlets; income ($B = .26, F(1, 181) = 3.59, p < .06$), such that higher-income families were likely to dine out at the selected restaurants more often; and the excitement List of Values factor ($B = -.48, F(1, 181) = 4.65, p < .05$), which may suggest a tendency toward variety-seeking behavior. Of relevance to our hypotheses, there was a significant interaction between the two lay theories ($F(1, 181) = 4.19, p <$

¹The questionnaire was administered in English in Singapore and translated into Chinese for use in Hong Kong. Location had no effect on the observed patterns, and thus we do not discuss it further.

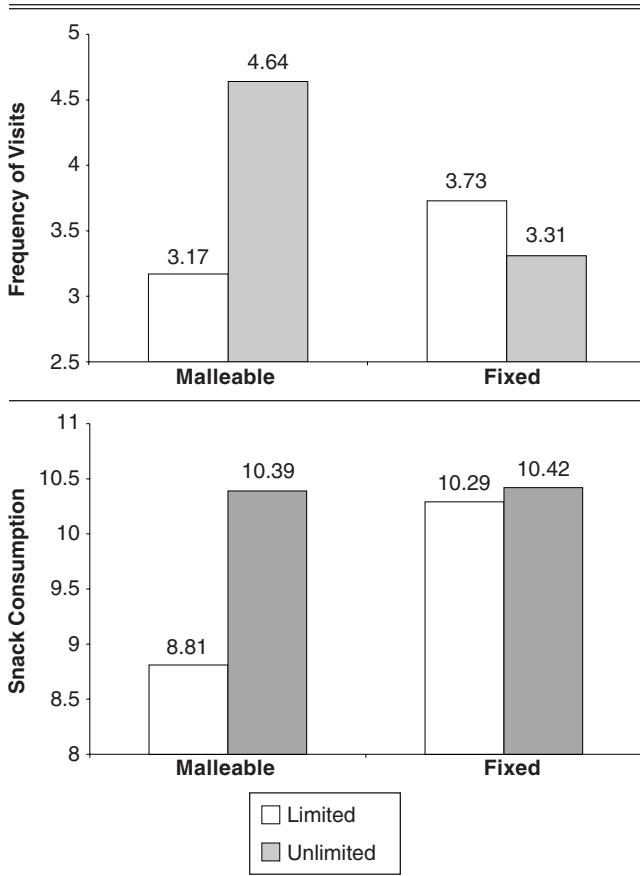
²We obtained similar patterns when we used the continuous lay theory measures in multiple regression analyses. We do not report them here for purposes of brevity. Furthermore, there were significant correlations among the measured demographic variables, and thus we did not enter them all simultaneously. Instead, we ran separate analyses using subsets of these measures and report the analysis yielding the most significant covariates here. Patterns on the lay theories measures were unaffected by the choice of covariate.

.05). As we predicted, planned contrasts indicated that limited-malleable theorists reported that their children visited fast-food restaurants less frequently than unlimited-malleable theorists ($M_s = 3.17$ versus 4.64 ; $F(1, 181) = 4.83, p < .05$). Furthermore, as we expected, there was no difference between limited-fixed and unlimited-fixed theorists ($M_s = 3.73$ versus 3.31 ; $F < 1$, not significant [n.s.]) (see Figure 1).

We observed a similar pattern on the weekly snacking data. None of the covariates approached significance, but there was a marginal main effect of the limited/unlimited lay theory ($F(1, 181) = 3.24, p < .08$) qualified by a significant interaction between the two lay theories ($F(1, 181) = 4.18, p < .05$). Planned contrasts indicated that limited-malleable theorists were less likely to appease their children with unhealthy snacks than unlimited-malleable theorists ($M_s = 8.81$ versus 10.39 ; $F(1, 181) = 7.04, p < .01$). Again, there was no difference between limited-fixed and unlimited-fixed theorists ($M_s = 10.29$ versus 10.42 ; $F < 1$, n.s.).

Figure 1

EXPERIMENT 1: MONTHLY FREQUENCY OF VISITS TO FAST-FOOD RESTAURANTS AND WEEKLY CONSUMPTION OF UNHEALTHFUL SNACKS AS A FUNCTION OF LAY THEORIES OF SELF-CONTROL



Notes: A lower frequency of visit to fast-food restaurants and a lower level of unhealthy snack consumption are indicative of greater control over children's consumption of unhealthy food. Limited-malleable theorists reported that their children visited fast-food restaurants less frequently and consumed fewer unhealthy snacks than unlimited-malleable theorists. There was no difference between limited-fixed and unlimited-fixed theorists.

Discussion

These results provide initial evidence that parents' lay theories of self-control systematically influence their choices of products for their children. Limited-malleable theorists reported executing tighter control over the consumption of fast food and were less likely to appease their children with unhealthy snacks than unlimited-malleable theorists. As for fixed theorists, the frequency of visiting fast-food restaurants and the likelihood of appeasing children with snacks did not differ as a function of whether they believed that self-control is limited or unlimited. There seemed to be an inconsistency in the data: Fixed theorists seemed to bring their children to fast-food restaurants as (in)frequently as limited-malleable theorists, but they were as likely as unlimited-malleable theorists to appease children with unhealthy snacks. However, this pattern is not inconsistent with our hypotheses. Our theory predicts that limited-fixed and unlimited-fixed theorists will be similar because they tend not to view the development of self-control as a basis for their decisions. Our theory does not speak to what criteria fixed theorists eventually consider in making their decisions. Therefore, we do not exclude the possibility that they use different criteria in different situations, reflecting some baseline propensities toward which our theory is agnostic. Indeed, as Wyer (2004) avers, many different theories may be brought to bear on a given judgment, and which theory is applied is determined by its relative applicability and accessibility. Thus, because we argue that fixed theorists perceive lay theories of self-control as irrelevant (and, therefore, inapplicable) in the foregoing situations, we expect their decisions to be driven by other criteria not related to lay theories of self-control and, thus, outside the scope of the current research.

Follow-up study. The results of Experiment 1 are constrained because our chosen sets of snacks and fast-food restaurants do not cover all available options. However, to the extent that they are representative of the universe of choices, these results support our hypotheses. We attempted to assess the generalizability of these findings by conducting a similar experiment in another important domain—television viewing. As in Experiment 1, research assistants intercepted parents of children between the ages of four and six at various venues around Hong Kong. The questionnaire administered had three sections: a television-viewing section and the same sets of demographic questions and personality profile that we used previously. In the television-viewing section, parents were presented with a list of eight popular television programs, which had been identified after consultation with local parents and day care professionals. These had been carefully selected such that four were primarily educational (e.g., *Sesame Street*) and four were primarily entertainment (e.g., *Masked Rider 555*). The selected programs were matched on language (English versus Cantonese), genre (cartoon versus noncartoon), and availability (cable/subscription channel versus free local broadcast). Parents were asked to pick programs that they generally wanted their child to watch. We constructed indexes of relative preference for educational programs by subtracting the number of entertainment programs chosen from the number of educational programs chosen. Reassuringly, the finding was consistent with that of Experiment 1. As we expected, limited-malleable theorists showed a greater relative prefer-

ence for educational programs than unlimited-malleable theorists ($M_s = .70$ versus $-.11$; $F(1, 43) = 8.89, p < .01$), and limited-fixed and unlimited-fixed theorists did not differ in their preferences ($F < 1$).

Substantively, these results demonstrate that parents' lay theories have an effect in yet another important real-world domain. Media and diet are probably the two most hotly contested areas as far as marketing to children is concerned, and research has shown that the total amount of time devoted to television viewing is greater in households that have lower income (Kaiser Family Foundation 1999). However, these differences operate over a high baseline: Most children view at least three hours of television and video every day. Given this level of exposure, our findings suggest that parents' lay theories play an important role in determining what they allow their children to watch and the nature of the messages to which their children attend.

Replication and process insights. Thus far, the results demonstrate that parents' lay theories have an effect on their food-related and television-viewing choices for their children. However, two potential limitations need to be addressed. First, it is possible that the lay theories we measured were somehow influenced by the parents' interactions with their children. That is, these lay theories might stem from parenthood or a particular child's personality. If so, people who do not have children should not share the same beliefs, and the effect of lay theories shown in Experiment 1 should not replicate. In contrast, if the lay theories people report truly represent their general beliefs about self-control, we should obtain similar findings with respondents who are not parents. We examine these possibilities in the next three experiments, which involve adults who are not parents. Second, it is possible that Experiment 1, as is any study conducted in the field, was subject to response biases or self-presentation biases. Therefore, we attempt to replicate our findings in lab experiments in which these sources of bias were minimized.

EXPERIMENT 2: CHOOSING A GIFT FOR A CHILD

This experiment employed a scenario in which participants were asked to choose a gift for a child. In accordance with our theorizing, people should prefer products that deliver greater value in the long run than in the short run only if they are inclined to develop the child's self-control and believe that it can be done. Those who do not have this inclination should prefer gifts that they believe the child would prefer (typically, toys that deliver instant, short-term pleasure rather than long-term value). Therefore, the inclination to train self-control can be directly inferred from the perceived trade-off between long-term and short-term value.

Method

Participants and procedure. One hundred fifty-three undergraduate students at a major Hong Kong university participated in return for course credit. The stimuli for this study were presented as filler materials for an unrelated study. Participants worked through the questionnaires at their own pace and were debriefed and thanked at the end of the session.

Stimuli and design. This study consisted of two questionnaires, the first labeled "Buying a Gift for a Child" and the second labeled "Personality Assessment Questionnaire."

The first task asked participants to "Imagine that you have to buy a birthday present for a 5-year-old child. This is the child of an elder cousin who is very close to you, and you really love the child, so you would like to buy as good a present as possible. Luckily, you have a coupon for 150 HK\$ [approximately US\$20] from the kids section of a large department store, so you can choose anything from there. What present would you ideally buy?" Participants described this ideal present in the space provided and then indicated whether they had a specific child in mind and whether the gift was gender specific. This procedure ensured that respondents selected gifts idiosyncratically rather than being asked to choose from predetermined products, thus allowing for variability in preferences. They then responded to items asking "Will this present give the child great value (e.g., learning or other benefit) in the long term?" "Will this present give the child great value (e.g., fun or happiness) in the short term?" (-3 = "strongly disagree," and 3 = "strongly agree"), and, finally, "Does this present give the child greater value in the short term or in the long term?" (1 = "greater short-term value," and 7 = "greater long-term value"). This procedure ensured that the measurement constituted respondents' own perceptions of the extent to which their chosen product delivered value over the long versus short run and not that of any external data coder who would perform have made the judgment based on subjective, error-prone inferences. (As an illustration, several respondents had listed "toy" as their chosen present, and the coded value for this ambiguously described item ranged across the scale from 1 to 7.) The personality profile questionnaire consisted of the List of Values and the lay theory measures as previously.

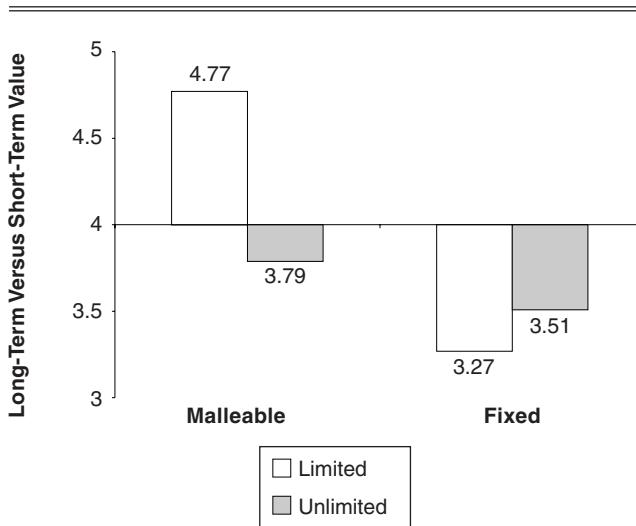
Results and Discussion

We averaged the items measuring the limited/unlimited lay theory ($\alpha = .68$) and fixed/malleable lay theory ($\alpha = .71$) to form separate measures of the two theories. The two measures were again correlated ($r = .16, p < .05$). A factor analysis on the List of Values again revealed two factors, representing needs for accomplishment and excitement (eigenvalues = 3.39 and 2.13, respectively), explaining 61% of the variance. Factor scores for these two factors were entered into the analysis as controls.

We regressed the item directly trading off between long- and short-term value on the measures of the two lay theories, their interaction, and the factor scores for seriousness and fun orientation. Only the interaction term was significant ($F(1, 147) = 4.82, p < .05$; for all other terms, $Fs < 1$, n.s.). To explore this effect further, we dichotomized the two lay theory measures using median splits, and we ran a 2 (lay theory: fixed versus malleable) \times 2 (lay theory: unlimited versus limited) between-subjects analysis of variance (ANOVA) on the same dependent measure, using the two factor scores as covariates. The interaction remained significant ($F(1, 147) = 5.53, p < .05$; see Figure 2), and as we predicted, planned contrasts revealed that limited-malleable theorists chose gifts that delivered greater long- than short-term value than unlimited-malleable theorists ($M_s = 4.77$ versus 3.79 ; $F(1, 147) = 18.46, p < .001$). Moreover, as we expected, there was no difference between limited-fixed and unlimited-fixed theorists ($M_s = 3.27$ versus 3.51 ; $F < 1$, n.s.). Notably, there was no effect on either of the individual

Figure 2

EXPERIMENT 2: EXTENT OF LONG-TERM VERSUS SHORT-TERM VALUE DELIVERED BY CHOSEN GIFT



Notes: Means greater than 4.00 represent greater long-term (versus short-term) value (i.e., a preference for virtues). Limited-malleable theorists showed a stronger preference for virtues than unlimited-malleable theorists. Limited-fixed and unlimited-fixed theorists did not differ in the degree to which they prefer virtues or vices for children.

measures of short-term value or long-term value ($F_s < 1$), indicating that the effect of lay theories came through not in separate evaluation, but only when respondents were explicitly asked to consider the trade-off between short- and long-term value delivery. Finally, introducing gender and specificity of the recipient as controls did not have any effects on the previously reported patterns.

These results replicated the patterns we observed previously, using nonparent participants and a different domain. Moreover, the key dependent variable was framed such that the gift-giver explicitly traded off between long- and short-term value, and the observed patterns are supportive of our theory. Evidently, it is not the choice of a specific gift but rather the way adults resolve this conflict that signals their inclination to develop children's self-control.

EXPERIMENT 3: MANIPULATED LAY THEORIES AND GIFT CHOICE

The aim of Experiment 3 was to replicate the previous results with a strong test of causality. When lay theories are manipulated, if people with manipulated limited-malleable theories choose gifts that deliver greater long-term value than those with manipulated unlimited-malleable theories, it is possible to unambiguously attribute the effect to the lay theories of self-control being manipulated. Another aim of this experiment was to seek additional evidence that lay theories of self-control pertaining to people in general are being projected onto children.

Method

Participants and procedure. One hundred forty-three students at a large Hong Kong university participated in return for course credit. The stimuli for this study were presented as separate but consecutive parts of a set of unrelated stud-

ies. Participants worked through the questionnaires at their own pace and were debriefed and thanked at the end of the session.

Stimuli and design. This experiment employed a scenario similar to Study 2, in which participants were asked to choose a gift for a child. The study consisted of two questionnaires, with the first one labeled "Reading Comprehension Study" followed by "Buying a Gift for a Child." The first task was the lay theory manipulation. Corresponding to the four experimental conditions, participants read one of four possible passages, representing the two lay theories (limited/unlimited and fixed/malleable), fully crossed. These passages, taken from Mukhopadhyay and Johar (2005), consisted of two paragraphs of equal length (80 words); in all conditions, the first paragraph manipulated limited versus unlimited lay theory, and the second paragraph manipulated fixed versus malleable lay theory. The limited manipulation began with the statement "Self-control is a limited resource." It then briefly presented Muraven and Baumeister's (2000) model—namely, the tenets that all acts of self-control require effort, which depends on a person's current level of self-control strength, and that short-term losses of self-control can be explained as muscle fatigue. We drew the unlimited manipulation from Elster's (1979, pp. 55–56) reading of Descartes, stating that "self-control is an unlimited resource" and asserting that "everyone has unlimited access to willpower" and "anyone can do anything." The second paragraph in the malleable condition began "Self-control is also malleable" and then stated (corresponding to Dweck's [1999] measure of incremental theories) that "it only takes some effort to change one's self-control," "one's self-control is something that can be changed quite a lot," and "just as people can learn new things, they can also change their basic self-control." The passages in the fixed condition stated the opposite. In keeping with the cover story, the passages were followed by a comprehension test ("What is self-control said to resemble?"), measures of belief in each of the two lay theories (seven-point scales anchored by 1 = "limited, fixed," and 7 = "unlimited, malleable"), and a measure of how convincing the given passage was (1 = "not at all," and 7 = "extremely convincing"). These items functioned as manipulation checks.

Following this, participants moved on to the same gift-giving task as in Experiment 2, presented on a separate questionnaire that had a different appearance and used a different font. They described their ideal present followed immediately by the dependent variable trading off perceived short- versus long-term value. To provide additional evidence that lay theories of self-control pertaining to people in general are applied to children, we asked all participants to respond to a set of items that measured their views regarding the effects of adults' actions on children's self-control and the feasibility of developing the latter. Specific items of interest measured the perceived feasibility of teaching self-control ("children's self-control capabilities can be improved through constant effort") and the role of parental choices ("children learn to control themselves by watching what adults do").

Results

Manipulation checks. We conducted between-subjects ANOVAs on the measures of agreement with each of the two manipulated lay theories using the complete 2 (limited versus unlimited) \times 2 (fixed versus malleable) design. We dropped 3 respondents who reported complete disagreement with the manipulated lay theory (e.g., a participant in the malleable condition reporting an extreme belief in the fixed theory—i.e., responding 1 on the manipulation check scale) and 11 others who did not answer the comprehension question correctly, which resulted in a usable sample of 129 respondents. As we expected, respondents who read the unlimited (versus limited) passage were more likely to believe that self-control is an unlimited resource ($M_s = 5.12$ versus 2.80 ; $F(1, 125) = 71.90, p < .0001$); respondents who read the malleable (versus fixed) passage were more likely to believe that self-control is a malleable quantity ($M_s = 5.94$ versus 3.32 ; $F(1, 125) = 92.60, p < .0001$).

Hypothesis tests. A 2 (limited versus unlimited) \times 2 (fixed versus malleable) ANOVA conducted on the perceived trade-off between long- and short-term value revealed only a significant interaction effect ($F(1, 125) = 4.68, p < .05$). As we predicted, planned contrasts revealed that limited-malleable theorists chose gifts that delivered greater long- than short-term value than unlimited-malleable theorists ($M_s = 4.24$ versus 3.36 ; $F(1, 125) = 4.66, p < .05$). As we expected, there was no difference between limited-fixed and unlimited-fixed theorists ($M_s = 3.13$ versus 3.52 ; $F < 1$, n.s.). Furthermore, when introduced as controls in the analysis, neither specificity nor gender of recipient had any effects on the previously reported patterns ($F_s < 1$, n.s.).

We conducted similar 2×2 ANOVAs on the items regarding the nurturance of children's self-control. We observed a significant interaction effect for the item that measured the extent to which participants agreed with the idea that children's self-control can be improved through constant effort. There was a significant main effect of the fixed/malleable lay theory manipulation ($F(1, 125) = 11.20, p < .001$), qualified by an interaction ($F(1, 125) = 9.71, p < .01$). Planned contrasts revealed that limited-malleable theorists agreed more strongly with this proposition than unlimited-malleable theorists ($M_s = 6.06$ versus 5.49 ; $F(1, 125) = 8.28, p < .01$), and there was no difference between limited-fixed and unlimited-fixed theorists ($M_s = 3.13$ versus 3.52 ; $F(1, 125) = 2.42, p > .10$, n.s.). We observed a similar pattern on the other measure—the statement that children learn self-control by observing the choices that adults make. Here, the only significant effect was the interaction ($F(1, 125) = 5.29, p < .05$), and follow-up contrasts again revealed that limited-malleable theorists agreed more strongly than unlimited-malleable theorists ($M_s = 5.85$ versus 5.33 ; $F(1, 125) = 3.88, p = .05$); there was no difference between limited-fixed and unlimited-fixed theorists ($M_s = 5.16$ versus 5.52 ; $F(1, 125) = 1.68, p > .10$, n.s.). These results mirror those observed on the main dependent variable, in support of our hypothesis that lay theories of self-control pertaining to people in general are applied to children, influencing actions regarding the nurturance of children's self-control. Specifically, compared with unlimited-malleable theorists, limited-malleable theorists not only have a greater inclination to give children products that involve the delay of gratification but also believe that such actions have

desired effects on children. Fixed theorists across the limited-unlimited continuum are indifferent to intertemporal value delivery characteristics of gifts.

Discussion

These results replicate the finding from Experiment 2, with lay theories experimentally manipulated rather than measured. Here, our experimental manipulation of lay theories enables us to unambiguously attribute the different patterns of results to the different lay theories of self-control, which strongly supports our basic proposition. Again, only limited-malleable theorists chose gifts that deliver greater value in the long run than in the short run and were more likely to believe that a person needs to put in constant effort to improve children's self-control and that what parents choose and do can influence children's learning of self-control. Both the beliefs and the choices were consistent with the inclination to teach children self-control. In contrast, the other three types of theorists neither showed a tendency to choose gifts that deliver long-term value nor rated agreement toward the two statements pertaining to the training of children's self-control. (Although unlimited-malleable theorists tended to believe, consistent with their "malleable" world-view, that self-control can be developed through effort, they were not so sure that children need to learn self-control by observing adults' choices.)

EXPERIMENT 4: MANIPULATED LAY THEORIES AND SELF-REPORTED SELF-CONTROL

Experiments 1–3 consistently demonstrate that limited-malleable theorists are more likely than unlimited-malleable theorists to choose relative virtues for children, while limited-fixed and unlimited-fixed theorists do not exhibit different preferences toward virtues or vices. Although it is evident that adults' lay theories of self-control influence their decisions, it remains unclear whether adults' own self-control also plays a role. To illustrate the possible influence of adults' own self-control, consider the following scenario: You want a five-year-old child to read some beginners' books with you, but she would rather watch cartoons. Your decision can be framed in terms of two conflicting options: Deny the request and possibly guide her in the exertion of self-control, or be permissive and allow indulgence. Denial can have long-term benefits, but it comes with short-term costs, such as tantrums, which can be effortful to handle. Conversely, being permissive may be appealing in the short run because it is simply easier, but it may be detrimental to the child in the long run. If decision situations are interpreted in this manner, the adult decision maker faces what is essentially his or her own self-control dilemma (Ainslie 1975). Accordingly, the adult's own actual self-control should influence the decision. This consideration does not pose an alternative explanation for the findings reported so far, because we controlled for own self-control (as well as other individual differences) in Experiment 3, which manipulated lay theories. Nevertheless, self-control might also influence parents' decisions, and thus it is important to account for its effect. In Experiment 4, we manipulated lay theories and measured self-reported self-control to demonstrate that lay theories of self-control are distinct from actual self-control and, more important, that lay theories of self-control have effects that are independent of self-control.

Method

Participants and procedure. One hundred ten students at a major U.S. university in the Midwest participated in return for course credit. Participants first responded to a set of personality questions, which included Puri's (1996) Consumer Impulsivity Scale (CIS). After a half-hour filler task, the stimuli for this study were presented as in Experiment 4. Participants worked through the questionnaires at their own pace and were debriefed and thanked when they finished.

Stimuli and design. As in Experiment 3, we manipulated lay theories in a 2 (limited/unlimited) \times 2 (fixed/malleable) between-subjects design using the same "Reading Comprehension Task." Immediately afterward, participants were presented with a scenario titled "Research Study on Social Interaction." They were asked to "Imagine that you are babysitting a 5-year-old child. This child is very close to you, and you really love the child a lot. The child's parents have left you with some beginners' reading books for him/her, as well as a couple of books that they would like you to read to him/her. However, the kid says he/she wants to watch cartoons on TV first. Would you let the kid watch TV?" Responses were assessed on a seven-point scale (1 = "very unlikely," and 7 = "very likely").

Results

We averaged the seven items of the impulsivity subscale of the CIS to form a measure of self-reported self-control ability ($\alpha = .85$). We conducted a 2 (limited versus unlimited) \times 2 (fixed versus malleable) ANCOVA on the measure of permission to watch cartoons, controlling for impulsivity, which revealed a marginal effect of the limited/unlimited lay theories ($F(1, 105) = 3.03, p < .09$) and a weak directional effect of impulsivity, such that respondents who were more impulsive were more likely to allow the child to watch television ($B = .22, t(105) = 1.36, p < .18$). Critically, in strong support of our theory, there was a significant interaction between the two lay theories ($F(1, 105) = 4.17, p < .05$) such that limited-malleable theorists were significantly less likely to allow the child to watch television than unlimited-malleable theorists ($M_s = 2.99$ versus 4.22 ; $F(1, 105) = 7.15, p < .01$). There was no difference between limited-fixed and unlimited-fixed theorists ($M_s = 3.73$ versus 3.63 ; $F < 1$, n.s.).

Discussion

This result demonstrates that lay theories of self-control have the predicted causal effect on people's choices for children even when own self-control is accounted for and that own self-control itself has only a weak effect. In light of a possible carryover effect of the lay theory manipulation on responses to the self-control items, we conducted a follow-up study in which 72 students at a major Singapore university responded first to the scenario and the lay theories measures used previously and then, two weeks later, to the impulsivity scale. Neither limited/unlimited nor fixed/malleable theory was correlated with impulsivity (in both cases, $r = .05, p > .50$), providing further evidence that lay theories are distinct from own self-control. We conducted a 2 (limited versus unlimited) \times 2 (fixed versus malleable) ANCOVA on the permission to watch television, controlling for impulsivity; again, this revealed a significant interaction ($F(1, 67) = 5.63, p < .05$), such that limited-malleable theorists were less

likely to allow the child to watch television than unlimited-malleable theorists ($M_s = 3.25$ versus 4.59 ; $F(1, 67) = 7.23, p < .01$), and there was no difference between limited-fixed and unlimited-fixed theorists ($M_s = 4.04$ versus 3.63 ; $F < 1$, n.s.). Impulsivity had a stronger effect here, such that impulsive respondents were more likely to allow the child to watch television ($B = .50, t(67) = 2.59, p < .05$). These results converge on the conclusion that lay theories of self-control have effects on choices that are independent of self-reported self-control.

GENERAL DISCUSSION

Across four experiments, the observed results demonstrate that the lay theories of self-control that people hold can exert their influence in several ways. In Experiment 1, we found that lay theories of self-control influence parents' choices of food products, eating behaviors, and television programs, when considerations of long- versus short-term value are involved. In Experiments 2 and 3, we found that adults who do not have children of their own also behave similarly because lay theories of self-control influence people's tendencies to gift products that encourage delayed gratification. These data indicate that lay theories of self-control in general, not other immediately apparent beliefs stemming from parenthood, are responsible for the observed results. Moreover, Experiment 3 revealed systematic differences in beliefs regarding the effects of adults' actions on children's self-control and the feasibility of developing the latter. Finally, Experiment 4 ruled out the possibility that the results were driven simply by differences in self-control between limited-malleable theorists and others. The coherent patterns observed across experiments occurred in three countries (Hong Kong, the United States, and Singapore), and the domains of gift giving, babysitting, television program preferences, and eating allowances, as well as laboratory experiments both with student participants and in the real world with real parents, provide strong support for our basic hypothesis.

Contributions and Further Research

The key contribution of this research is in bringing together the literature on self-regulation, interpersonal processes, and parenting in a context directly relevant to consumer research. Despite the ubiquity of marketing efforts to young children (Schor 2004), there is a dearth of research on the consumerization of this critical segment of the population (John 1999). This is important because there are significant differences in the ways that children of different ages respond to marketing stimuli (Moore and Lutz 2000; Peracchio 1992). As John (1999, p. 205) states, "The vast majority of work done in this area has been conducted with adolescents. Virtually no studies exist with younger children on the topic of social and economic motives for consumption." Our focus in this research was on the formative years, in line with her comment that "studies with younger children ... would be useful in understanding the relationship between social and cognitive development and aspects of consumer socialization" (John 1999, p. 205). As we mentioned previously, any lasting effects of the choices made by parents and other adults—whether they endure, how they mature, and how they contribute to the development of the

child's own lay theories—are important issues that we leave for further research.

This research also contributes individually to each of the aforementioned literature streams. Recent developments in consumer research indicate that lay theories of self-control can influence goal-directed behavior (Mukhopadhyay and Johar 2005). Our results extend this work by showing that lay theories of self-control have an influence not only on goal-directed behaviors undertaken by and for the self (i.e., self-regulation) but also on behaviors projected onto others. Furthermore, the finding that lay theories had the predicted effects while consumers' values did not have any effect is noteworthy in and of itself and also because neither lay theory was correlated with self-control or values (correlations ranged from -.07 to .17). This is evidence that lay theories of self-control are important psychological variables in their own right that are orthogonal to other constructs and have effects specific to themselves. A further exploration of the antecedents of lay theories and their patterns of interrelationship with variables such as the List of Values is an issue for further research. Furthermore, much of the extant research on lay theories deals with inferences rather than behaviors, and there is scant research on interpersonal behavioral effects of lay theories. We contribute to this literature by finding evidence for these influences and evidence that they manifest not in blatant ways but rather along the same forms of subtle social interaction (John 1999) that parental influence on children often takes. It would be useful to investigate whether parents' lay theories can be modified either through mass media or through point-of-sale communications at retail outlets, such as fast-food restaurants, in ways that would benefit their children's consumption.

A key controversy in the literature on parenting is the directionality of the relationship between parenting efforts and self-regulation (Grolnick and Farkas 2002). One school of thought suggests that sparing the rod spoils the child and that parental (in)actions determine child outcomes. However, it has also been observed that children who are generally well-behaved tend to evoke fewer actions of explicit controlling parenting. Our results show that the actions of parents and other adults may be driven purely by the implicit assumptions the adult holds, independent of any explicitly held motives. These implicit assumptions can be learned by children and thus transferred across generations (Dweck 1999). Characteristics observed at an early age can have lasting influences (Shoda, Mischel, and Peake 1990), and as John (1999) notes, the extent to which adolescents exhibit materialistic tendencies that may have been seeded at a younger age can depend on factors such as family and peer communication. Given our results and the significance of this topic for consumer socialization, further research should track children's preferences over time and across cohorts to map the extent to which parents' lay theories are visited on their children.

In a related vein, we want to emphasize that though our research shows that limited-malleable theorists tend to execute tighter control over children and choose virtues for them, we do not claim that the execution of control is always beneficial for children. Indeed, it is possible that limited-malleable theorists' well-meaning choices of virtues could have the ironic effect of lowering self-control. Several

other researchers have discussed the effectiveness of various parenting strategies on aspects of development. For example, Lamborn and colleagues (1991) suggest that parents should adopt an authoritative parenting style, setting standards for conduct and firmly enforcing them. Firm but nonrestrictive control gives children opportunities to learn to be responsible for their own behavior. Indeed, Deci and colleagues (1993) videotaped six- and seven-year-old children playing with toys (Lego and Lincoln Logs) and found that children with mothers who said things that were more "autonomy supportive" than "controlling" showed greater intrinsic motivation for the task. In addition to adopting an authoritative style, parents are recommended to carry out specific practices that are consistent with this style (Darling and Steinberg 1993). For example, they should guide children to perform behaviors that require them to exercise self-control. After a few repetitions, they should encourage children to initiate these behaviors themselves so that these behaviors become well learned and internalized (Grolnick, Deci, and Ryan 1997). In addition, parents are advised to teach coping skills, such as how to shift children's attention in delay of gratification situations, and to help children anticipate the consequences of their actions (Maccoby 1980).

Marketing Implications

Our results raise pertinent questions for marketers of products to children. Parents of five-year-olds are gatekeepers for the children's decisions, and their preferences must be taken into account. Positioning products as relative virtues can help attract parents who are limited-malleable theorists without necessarily turning away fixed theorists. This would be in line with socially desirable outcomes. For marketers of such virtue products, it may even be desirable to subtly (but not blatantly) cue limited-malleable lay theories in communications and point-of-purchase materials. However, as evidenced in Experiment 2, children can naturally be attracted to products that deliver instant gratification. Therefore, explicitly positioning a product as a vice may be the most evident and, indeed, common course of action. However, such preferences may be aligned with those of their caretakers' only if the latter are unlimited-malleable theorists. Thus, not only is the promotion of relative vices socially less desirable, as our results indicate, but it may also alienate substantial proportions of the decision-making population. Drawing from our results and Wyer's (2004) observation that the effects of lay theories may be evidenced even when lay theories are situationally primed, marketers should consider the nature of the product they are offering (virtue or vice), whether parents placed in a purchase/consumption opportunity for this product activate the goal of developing their child's self-control, and how best the product might be positioned given these two eventualities.

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