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## Full Length Article

Age differences in children's happiness from material goods and experiences: The role of memory and theory of mind<sup>☆</sup>Lan Nguyen Chaplin<sup>a,\*,1</sup>, Tina M. Lowrey<sup>b,1</sup>, Ayalla A. Ruvio<sup>c</sup>, L.J. Shrum<sup>b</sup>, Kathleen D. Vohs<sup>d</sup><sup>a</sup> College of Business Administration, University of Illinois at Chicago, United States of America<sup>b</sup> HEC Paris, France<sup>c</sup> Broad College of Business, Michigan State University, United States of America<sup>d</sup> Carlson School of Management, University of Minnesota, United States of America

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Adults view past experiences as making them happier than material goods, yet products and brands are highly coveted by children, even at young ages. Using a child developmental framework, we reconcile these two perspectives. Across four studies with children and adolescents of ages 3–17 years, we show that children (ages 3–12) derive more happiness from goods than from experiences, but the effect changes over time. As children age, the happiness they derive from experiences increases, to the point that older adolescents derive more happiness from experiences than from material goods, consistent with adult findings. We show that these effects are mediated by increases in two cognitive skills: memory and theory of mind, which we posit are necessary for a sufficient comprehension of experiences and their implications, which in turn facilitates their enjoyment.

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## 1. Introduction

Imagine the ultimate children's playground experience: amazing inflatable structures, in a climate-controlled indoor environment with more games than children have time to play, good food, and the ability to share the spotlight with family and friends. Add special-effects lighting and glow-in-the-dark accessories that transform the experience into full-throttle cosmic bliss, and you should have a guaranteed memorable experience, right? This “cosmic bounce party” was the venue for the first author's son's 6th birthday party. Afterwards, she asked her son what the best part of the day was, and without hesitation he replied, “All the presents I got! I'm so happy!” Apparently, even though he clearly enjoyed the entire event, gift bags holding puzzles and Star Wars Legos™ made him happier retrospectively than did the unique cosmic experience or the special time spent bonding with family and friends.

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When do children derive more happiness from their experiences than from their material possessions? Apparently they eventually do, as research clearly shows that adults view experiences as making them happier than do material goods (Van Boven, 2005; Van Boven & Gilovich, 2003; see Gilovich & Gallo, 2020, for a review). Moreover, how and when does this process occur? Our research addresses these questions. Although research shows that children derive happiness from goods (Chaplin & John, 2007, 2010), and adults derive happiness from experiences (Van Boven, 2005; Van Boven & Gilovich, 2003), to our knowledge no research has addressed when and how happiness from experiences develops for children.

Building on the literatures on adult experiential consumption and children's consumer behavior, we report four studies that investigate changes in the degree to which children derive happiness from experiences over time, and the processes underlying these effects. We propose that in order for children to maximize the happiness they derive from particular experiences, they must first be able to fully comprehend and understand the significance of those experiences, and that this comprehension is driven by cognitive sophistication. In particular, we focus on two cognitive developmental factors: memory and theory of mind (the ability to understand the mental states of others). We argue that these two cognitive factors are crucial to the development of downstream social factors (e.g., identity formation, self-esteem, social and relational skills) that undoubtedly contribute to the enjoyment of experiences. We show that very young children (ages 3–5) derive more enduring happiness from material goods than from experiences, but that adolescents (ages 16–17) find more happiness in experiences than in goods, replicating extant research with adults. Further, we show that these changes are driven primarily by increases in the happiness children derive from experiences as they age, and that these effects are mediated by developmental increases in memory and theory of mind: As children's abilities to comprehend the significance of experiences, integrate them into existing knowledge structures, and recall them from memory increase, so too does the happiness they derive from them.

Our research makes three primary contributions. First, it expands the literature on consumption of experiences versus goods to include children. Research on experiential consumption has been limited to adults (cf. Goodman, Malkoc, & Stephenson, 2016; Howell & Hill, 2009; Van Boven, 2005), with little guidance on what happens in childhood. Further, children's consumer research has primarily focused on children's understanding of and happiness with goods across a variety of contexts, including consumption constellations (Chaplin & Lowrey, 2010), materialism (Chaplin & John, 2007), and self-brand connections (Chaplin & John, 2005). None has examined children's understanding of and happiness with experiences.

Second, and relatedly, our research provides boundary conditions for research showing that people prefer and derive more happiness from experiences than from goods. We show that this effect is age-dependent: Young children report deriving more happiness from goods than from experiences, and it is not until late adolescence that experiences provide more happiness than do goods, as previous research with adults has consistently shown.

Third, our research provides evidence of the processes underlying these effects and their changes over time. Despite the impressive literature demonstrating the effects of experiential consumption, few studies have focused on the processes underlying these effects, and the ones that have done so provide somewhat disparate evidence (social function, self-connection, social comparison, etc.). We implicate processes that underlie these effects within a child developmental framework. We show that deriving happiness from experiences is a function of cognitive sophistication that increases with age, which drives the increase in happiness derived from experiences over time. We focus specifically on the cognitive developmental factors of memory and theory of mind, the latter of which has received little attention in consumer research.

Specifically, we expect happiness with experiences to increase with age. We also make predictions regarding the relative differences in happiness derived from experiences versus goods, as a function of age. We have proposed that sufficiently developed memory and theory of mind abilities are necessary for maximizing happiness from experiences. Because children are deficient in these cognitive abilities, they may not derive as much happiness from experiences as they do from goods, consistent with the opening vignette. Goods are much more concrete and require less reasoning about intention or mental states compared to experiences. However, because these cognitive developmental abilities increase with age, we expect the happiness derived from experiences to increase with age as well. This expectation, in combination with adult research showing that experiences provide more happiness than do goods, suggests that the relative happiness children derive from goods over experiences will reverse later in development, replicating research with adults. Although we cannot provide a precise prediction of when this reversal will occur, we believe it is mostly likely to occur in late adolescence, when memory and theory of mind are sufficiently developed to facilitate the appreciation of experiences and thus the happiness they provide.

## 2. Theoretical development

Consumers frequently use goods and experiences with the aim of making themselves happy (Richins, 2013). Van Boven and Gilovich (2003) introduced the distinction between experiences and material goods, defining an experience as “an event or series of events that one lives through,” and a material good as “a tangible object that is kept in one's possession” (Van Boven & Gilovich, 2003, 1194). Although they acknowledge that for some products or experiences the experiential–material distinction is not always clear (similar to the distinctions between hedonic vs. utilitarian goods, high vs. low involvement products, extrinsic vs. intrinsic motivations, etc.), people can easily generate examples that unambiguously fit either category (Gilovich & Gallo, 2020; Van Boven, 2005; Van Boven & Gilovich, 2003).

The general conclusion from this literature is that consumers derive more happiness from experiences than from goods, which has been referred to as the *experiential advantage* (Zhang, Howell, Caprariello, & Guevarra, 2014). Most of this research is retrospective. When recalling purchases of experiences and goods, compared to goods, consumers say they are happier and more satisfied with experiences (Nicolao, Irwin, & Goodman, 2009; Van Boven & Gilovich, 2003), they express more gratitude for

experience opportunities (Walker, Kumar, & Gilovich, 2016), and they are happier merely reflecting on a past consumption experience (Van Boven & Gilovich, 2003, Study 3). However, the experiential advantage can also be prospective (anticipatory). Consumers report being happier waiting to acquire an experience compared to waiting to acquire a material good (Goodman, Malkoc, & Rosenboim, 2019; Kumar, Killingsworth, & Gilovich, 2014) and they are willing to borrow more to purchase experiences than they are to purchase goods (Tully & Sharma, 2017). Finally, the happiness that experiences provide is not limited to purchase situations. People also enjoy experiential gifts more than material gifts (Chan & Mogilner, 2017).

Why are experiences more advantageous than goods for conveying happiness, whether retrospective or prospective? A number of explanations have been offered. One possibility is that experiences may be more difficult to compare than material goods (Carter & Gilovich, 2010). The more tangible nature of goods makes their characteristics easier to align, easier to translate into a concrete image that can be stored in memory, and easier to dissect in terms of particular features. Easy comparisons can foster rumination, invidious feelings, and remorse (Carter & Gilovich, 2010; Rosenzweig & Gilovich, 2012). The more abstract nature of experiences may also influence how they are remembered. Because past experiences exist solely in memory, individuals' memories of their experiences can be pleasantly and positively distorted over time, allowing for a reinterpretation that is remembered as better than it was initially (Mitchell, Thompson, Peterson, & Cronk, 1997; Van Boven & Gilovich, 2003). Thus, experiences may be more resistant to the typical pattern, seen for goods, of waning pleasure with continued use (Nicolao et al., 2009).

Another explanation for the experiential advantage pertains to differences in experiences' and goods' interpersonal aspects. Experiences are great for interpersonal conversations (Bastos & Brucks, 2017). Taking part in experiences can facilitate relationships and deepen feelings of solidarity in contexts as varied as viewing a sports game (Holt, 1995), whitewater rafting (Arnould & Price, 1993), or vacationing as a group (Van Boven & Gilovich, 2003). Long after experiences have passed, they can continue to aid relationship growth through recalling and reliving them with others (Carter & Gilovich, 2012; Van Boven & Gilovich, 2003). Hence, experiences are likely to foster strong social relationships, which are important contributors to happiness and well-being (Caprariello & Reis, 2013; Howell & Hill, 2009).

Although the explanations just noted are varied, they have at least one thing in common: They require a certain degree of cognitive sophistication. To derive retrospective happiness from an experience, individuals must be able to recall the details of the experience (have good memory). Further, to understand the importance of experiences in fostering social relationships, individuals must be able to gauge other people's feelings and perspectives (have good theory of mind). Although memory and theory of mind are taken for granted for adults, children are deficient in these cognitive skills, but develop them as they mature. Memory development helps children recall details of experiences (which can be difficult given the intangible nature of experiences), and theory of mind development helps children make sense of their social world. Both skills should help children enjoy experiences more.

If, as hypothesized, these cognitive capabilities are crucial for gaining enjoyment of past experiences, then it is likely that children, especially at young ages, may not derive as much happiness from past experiences as from goods. However, with age and corresponding cognitive development, children should derive increasingly greater happiness from past experiences. If so, then happiness from past experiences should eventually surpass the happiness from goods.

### 2.1. Memory

There are numerous types of memory (Tulving, 1985), the most relevant of which, for our theorizing, is episodic memory, a form of declarative (explicit) memory. Details of experiences are autobiographical and connected to the self (e.g., "I was at the concert;" "I baked the cake;" Greenwald, 1981; Kihlstrom, Beer, & Klein, 2003). Far from being a veridical record of what happened, memory—and especially autobiographical memory—is malleable and tends to be positively biased (Storm & Jobe, 2012).

Experiences are also intangible and fleeting. Rather than being a snapshot of a moment in time, memories are edited to reflect contemporary understanding of the world (Bridge & Voss, 2014). Thus, memories for experiences are built on transient information, some of which gets encoded and stored in memory, and is readily altered as new relevant information comes in.

Children's memory improves with age (Bjorklund, 1987), partially from gaining background knowledge (O'Sullivan & Howe, 1998), which affects what is encoded, how information is organized in memory, and how accessible the information is. Given the abstract nature of experiences, children may find it difficult to encode, organize, store, or retrieve details about experiences until their ability to process abstract concepts improves (Meinke, George, & Wilkinson, 1975), their episodic memory improves (Schneider & Pressley, 1997), and their memories of previous experiences become associated and tagged with additional contextual details, which help memory retrieval (Bauer, Burch, Scholin, & Güler, 2007). We therefore hypothesized that, to the degree that the ability to retrieve details of abstract experiences would influence current feelings of happiness from those experiences, improvements in memory will increase the happiness derived from experiences.

### 2.2. Theory of mind

Many experiences are social ones that involve interpersonal interaction, and the social aspect of experiences is a big contributor to the happiness they provide (Caprariello & Reis, 2013). Experiences can facilitate relationships and deepen feelings of solidarity (Arnould & Price, 1993; Van Boven & Gilovich, 2003). Understanding and appreciating the social features of experiences can facilitate happiness both during an experience and even after it has passed.

Theory of mind is the ability to understand and predict others' behaviors from estimates of others' inner feelings and thoughts, and has a long history in child development (Premack & Woodruff, 1978). Thus, theory of mind is not only a framework for processing informational inputs in terms of actions, intentions, and beliefs (i.e., awareness that others have them), but also for

subsequent, automatic processing of the implications of this information (e.g., others' motives for their actions; Malle, 2005). People with well-developed theory of mind perform these actions effortlessly, allowing them to negotiate social situations with ease. In contrast, people with less well-developed theory of mind struggle to make sense of the inputs because they lack the necessary framework for interpreting them, and generally find such social situations unenjoyable (Epley & Waytz, 2010; Malle, 2005).

Theory of mind begins to develop at a young age (around age two to four), develops through childhood, and continues to develop through adolescence and into adulthood (Dumontheil, Apperly, & Blakemore, 2010; Wellman, Cross, & Watson, 2001). At an early age, children understand basic mental states such as simple emotion (e.g., happiness), and that others possess these states, but they have difficulty predicting how such states translate into behavior (e.g., she's happy, so she's laughing and climbing on everything on the playground; Wellman et al., 2001). Understanding others' emotional states fosters perspective-taking, a critical component for empathy (Coke, Batson, & McDavis, 1978). Increases in children's theory of mind make them better social partners, increases their conversational skills, and are correlated with teacher ratings of social competence (Hughes & Leekam, 2004).

Given the role of theory of mind in understanding social interactions, theory of mind may help children appreciate and thus derive happiness from experiences. Understanding the mental states of others allows one to make accurate inferences about others' motives and intentions. Such understanding facilitates ease of processing, and thus the enjoyment of social experiences, contributing to successful relationships that are key to life satisfaction (Caprariello & Reis, 2013; Van Boven, 2005). Thus, we hypothesized that improvements in children's theory of mind will increase the happiness they will derive from experiences.

### 3. Hypotheses and empirical overview

Our primary hypothesis is that the retrospective happiness that children derive from past experiences, or the prospective happiness children expect from future experiences, will increase with age. Further, we also hypothesize that these effects will be driven by increases in cognitive developmental abilities, in particular, increases in memory and theory of mind function. As memory and theory of mind abilities naturally increase as children age, so too will the happiness they derive from experiences. We also hypothesize that younger children's greater happiness from goods over experiences will reverse with age, in that by adolescence, experiences will provide greater happiness than goods.

Note however that this reversal could occur in one of two ways: as the happiness derived from experiences increases with age, the happiness derived from goods either decreases, or it remains constant over time. Because our theoretical development focuses on experiences, it cannot distinguish between these two possibilities, and thus we do not offer firm predictions on happiness derived from goods as a function of age. However, given that goods are arguably more tangible and concrete than are experiences, and also do not themselves require perspective-taking, memory and theory of mind are likely to have little relation to the enjoyment of goods.

We tested our hypotheses in four studies that varied the age ranges, design, and dependent (criterion) measures. Studies 1A and 1B are field studies with children 5–16 years old that manipulated the choice of price-equivalent promotions that represented either a good or an experience. In Studies 2 and 3, we used methodologies that take into consideration potential problems with methods commonly used in research on experiential versus material consumption with adults to study children. For example, a typical study asks adult participants to recall past material and experiential purchases that are equivalent in price, and then rate the happiness they received from them (cf. Howell & Hill, 2009; Nicolao et al., 2009; Van Boven & Gilovich, 2003). However, this method is problematic for children, particularly young ones, who seldom make purchases of their own, and would be unlikely to know the cost of goods or experiences purchased for them.

To address this issue, Study 2 used an unstructured interview format that allowed children (ages 3–12 years) to spontaneously indicate what makes them happy. In Study 3, we again used the unstructured interview format, which allows for direct comparisons to Study 2, and expanded the age range (3–17 years) to include adolescents. In addition, we also included a collage methodology to measure happiness from goods and experiences. A collage methodology is commonly used in research with both children and adolescents, and in particular represents an easier cognitive task for younger children. Study 3 also tested our process hypotheses by including measures of memory and theory of mind.

For all studies, we obtained consent from camp and school officials, parents, and participants (assent). All participants whose parents gave informed consent were included. Participants understood that there were no right or wrong answers or choices, and that they would receive rewards for participating regardless of what happened in the study. We confirmed that all participants understood all the tasks. Across all studies, gender did not interact with any of the key predictors (memory, theory of mind, age) and is not discussed further.

### 4. Study 1A: field study (phase 1)

In Studies 1A and 1B, we collaborated with a martial arts school that was interested in developing promotional materials to increase enrollment. For the past three years, the owners of this business have allowed children to pick a prize if their parents signed a one-year contract (vs. monthly contracts). The owners of the school sought help to determine the prizes that would be most appealing to include in their future promotional efforts. In return, they allowed us to collaborate with the school for a two-phase field study that lasted for three months during the summer. In the first phase (Study 1A), the list of prizes included 32 choices that were constructed to effectively represent 16 price-equivalent good versus experience pairs. In the second phase (Study 1B), about one month later, the prize list was reduced to 10 (5 good–experience pairs) based on the popularity of the prizes observed in the first phase.



#### 4.1. Method

##### 4.1.1. Participants, design, and procedure

Eighty-four children (48 boys), ages 5–16, currently enrolled at the martial arts school were asked to fill out a survey by the school's owners. The survey took 2 to 7 min to complete. All participants attended at least one class a week. Fifty-five parents (34 Moms) were also recruited.

In conjunction with the owners of the martial arts school, we developed a list of 16 material goods and 16 experiences the owners were willing to offer as prizes, matched on price, and ranging in value from \$10.00 to \$150.00 (e.g., a \$10.00 nunchaku [martial arts weapon] versus a \$10.00 stretching lesson; a \$150.00 sparring gear set versus a \$150.00 birthday party; see top panel of Web Appendix A for the complete list of prizes). The children were given the list of goods and experiences (in matched pairs according to price, without the prices printed on the sheet), in randomized order, and were asked to circle all the prizes they would like to receive (theoretical range: 0–16 goods; 0–16 experiences). Participants could only choose one item from each pair. The number of goods and the number of experiences chosen served as the primary dependent variables. The children were also asked how happy they are when they go to martial arts classes (1 = not at all happy, 5 = very happy). Finally, as a measure of convergent validity, the parents were also asked to circle all the prizes they thought their children would like to have, and to indicate how happy they think their children are about going to martial arts classes with the same scale the children used.

#### 4.2. Results and discussion

The number of goods chosen ranged from 1 to 16. The number of experiences chosen ranged from 0 to 12. On average, the participants scored above the mid-point of the happiness scale when we asked them how happy they were to be attending the martial arts school ( $M = 4.51$ ,  $SD = 0.70$ ), and age was uncorrelated with either the child's happiness with attending the school or the parents' estimates of their child's happiness with attending ( $ps > 0.78$ ). These results suggest that the children were generally happy with the experience of attending the school, and thus the experiences represented attractive options for all, independent of age.

##### 4.2.1. Hypothesis testing

As expected, age was positively correlated with the number of experiences chosen ( $r = 0.22$ ,  $p = .049$ ), but negatively correlated with the number of goods chosen ( $r = -0.56$ ,  $p < .001$ ; see Web Appendix B for a graphical representation of these relations). (Note that the correlations are not inverses because the number of goods chosen and the number of experiences chosen were not the same.) The difference between the correlations is significant ( $z = 5.45$ ,  $p < .001$ ). Children aged 5–12 chose more material goods than experiences ( $M = 7.87$ ,  $SD = 4.05$  vs.  $M = 5.80$ ,  $SD = 2.74$ ;  $t(69) = 53.83$ ,  $p < .001$ ). Also as expected, this preference for goods over experiences reversed among adolescents aged 13–16, who chose more experiences than goods ( $M = 7.14$ ,  $SD = 4.09$  vs.  $M = 4.29$ ,  $SD = 2.73$ ;  $t(13) = 2.24$ ,  $p = .043$ ). However, conclusions from this latter comparison are tenuous given the low number of participants in this age group.

The responses of the parents were also consistent with the choices of the child participants. Parents of children aged 5–12 indicated that they believed their child would choose more goods than experiences ( $M = 6.62$ ,  $SD = 4.42$  vs.  $M = 5.10$ ,  $SD = 4.51$ ;  $t(41) = 3.38$ ,  $p = .002$ ). Children's reports of their happiness with martial arts classes were also correlated with their parents' reports of how happy they believed their children are with the classes ( $r = 0.40$ ,  $p = .004$ ).

The results of Study 1A provide initial support for our hypothesis that children will derive more happiness from goods than from experiences, and that the happiness derived from experiences will increase with age. The results were also consistent with expectations expressed by the parents. This finding is important for two reasons. First, it reduces concerns children may not fully understand the exercises or are not sufficiently engaged in the task to provide valid data. Second, the parents' ratings are effectively observer ratings based on expectations from parents' experiences with their children. In other words, the parents' expectations likely represent their perceptions of their children's behavior across many consumption situations.

In Study 1B, we used the results from Study 1A to construct a reduced choice set based on the popularity of the promotions in Study 1A (how often they were chosen), and tested the same hypotheses. The reduced set is easier to complete, particularly for younger children. In addition, narrowing the set to the most popular choices for the goods and experiences provides more assurance that the goods and experiences are highly and equally valued in general.

## 5. Study 1B: field study (phase 2)

#### 5.1. Method

##### 5.1.1. Participants, design, and procedure

Seventy-four children (49 boys), ages 5–16, enrolled at the same school, were asked to fill out a one- to two-minute survey. All participants attended at least one class a week. (Note that because we were not allowed to assign unique identifiers to participants in Study 1A, it is possible that some respondents participated in both studies.)

The children were presented with five pairs of choices, each pair including one good and one experience matched on price, ranging in value from \$10 to \$35. These pairs were chosen because they were among the top eight goods or experiences chosen in Study 1A. (We did not simply use the top five from Study 1A in order to maintain price equivalence and range).

Children were instructed to circle all the prizes they preferred, between price-matched pairs (see bottom panel of Web Appendix A for Study 1B pairs).

## 5.2. Results and discussion

Both the number of goods and number of experiences chosen ranged from 0 to 5. Unlike Study 1A, all participants made a choice from all five good–experience pairs. Thus, for the correlations between age, and experiences and goods, respectively, the correlations of the two will be inverses.

### 5.2.1. Hypothesis testing

As expected, age was positively correlated with the number of experiences chosen ( $r = 0.43, p < .001$ ; see Web Appendix B for a graph of this relation). As in Study 1A, children aged 5–12 chose more goods than experiences ( $M = 3.10, SD = 1.17$  vs.  $M = 1.90, SD = 1.17$ ;  $t(61) = 4.02, p < .001$ ). Although not significant, this preference for goods over experiences again reversed among adolescents aged 13–16, who chose more experiences than goods ( $M = 2.83, SD = 1.03$  vs.  $M = 2.17, SD = 1.03$ ;  $t(11) = 1.12, p = .28$ ), but again this group size was very small. Thus, the findings replicate those of Study 1A.

Across Studies 1A and 1B, the results were consistent with our hypotheses. Age was positively correlated with the number of experiences chosen, which presumably reflects prospective judgments of how much happiness they will bring. In both phases, younger children chose goods over experiences, but this relative difference appeared to reverse in older children. Moreover, in Study 1A, parents' assessments were consistent with their children's choices, providing a measure of convergent validity.

However, as with any field study, it is difficult to control for threats to internal validity, due to lack of control of the research environment. In particular, Study 1A and 1B were underpowered. Our sample sizes for both phases were dependent on the number of responses to the offer, and the responses were skewed towards younger children. In addition, we were not able to control for the influence of other variables that may be driving the results. Nevertheless, the results across the two field studies show the basic predicted pattern, that of younger children preferring goods and adolescents preferring experiences. The findings held regardless of whether the choice set was relatively large (Study 1A) or small (Study 1B).

In Studies 2 and 3, we sought to replicate these results in a more controlled setting with a larger number of participants, and with different measures of happiness with goods and experiences. In addition, Study 3 tested our process hypotheses regarding the mediating roles of memory and theory of mind in the relation between age and happiness from experiences.

## 6. Study 2: age differences in happiness derived from experiences

Study 2 had two objectives. First, we wanted to validate a different measure of happiness from experiences and goods than ones typically used in research with adults, which present problems for research with young children and for comparing across age groups. Specifically, we wanted to establish that children, particularly very young ones, can spontaneously associate experiences and goods with happiness using an unstructured format. Rather than forcing a choice between alternatives, as in Studies 1A and 1B, we asked participants to provide spontaneous, idiosyncratic responses to what makes them happy. Although we asked the question of what makes them happy in the present tense, we assume that the judgments are retrospective. That is, forming an open-ended response to the happiness question requires the children to recall information from memory, effectively an unaided recall task. The second objective was to use these responses, which we coded as either goods or experiences, to test our hypotheses that young children will feel more happiness from goods than from experiences, but that the happiness derived from experiences will increase with age. For this study, we used only children ages 3–12 for our initial hypothesis testing.

### 6.1. Method

#### 6.1.1. Participants, design, and procedure

Fifty-six participants (29 girls) were recruited from summer camps in the northeastern United States: Twenty 3–5-year-olds, eighteen 6–9-year-olds, and eighteen 10–12-year-olds. We collected data until the last day that the camps allowed us to run our study. No demographic data were collected other than age and gender, but participants were from middle-class neighborhoods.

Each participant who returned a signed consent form and gave assent was interviewed individually in an unused room. The study lasted approximately 5–10 min (actual interview time lasted approximately 1–4 min). Each session began with the interviewer asking the participant, “What makes you happy?” The interviewer followed each response with “Why does that make you happy?” Two assistants who were blind to the purpose of the study were recruited to code responses, which were content-analyzed and classified as an experience or a good based on criteria developed in prior research (cf. Nicolao et al., 2009; Van Boven, 2005). Responses representative of something tangible that one can physically possess, move from one place to another, or break were coded as goods (e.g., Legos™, jewelry). Responses representative of something intangible that one lives through, cannot move from one place to another, and cannot break were coded as experiences (e.g., going to the movies, playing with pets). Inter-rater reliability was acceptable ( $r = 0.84$ ) and disagreements were resolved through discussion.

Responses confirmed that children as young as three years old are able to think in terms of both experiences and goods when asked what makes them happy. For example, a 3-year-old girl responded to the question of what makes her happy by saying, “My dolls. They make me smile... Getting a piggy back ride makes me happy...” Thus, when asked to talk about what makes them

happy without any specific prompts, children were able to talk about experiences as well as goods, and this was true across all ages. Children mentioned a variety of experiences (e.g., playing card games, going running with my parents) and goods (e.g., dolls, video games), indicating that the question “What makes you happy” elicited responses from both categories.

## 6.2. Results and discussion

### 6.2.1. Hypothesis testing

We expected that age would be positively related to happiness from experiences. We further expected that young children would derive more happiness from goods than from experiences, but that this relative difference would decrease with age. To test these hypotheses, we operationalized happiness from goods and experiences as the number of mentions of each (see Chaplin & John, 2007, for a similar operationalization). Thus, we first summed the number of experiences and goods mentioned by each participant to form composite variables of happiness from goods and from experiences, and then compared the two.

To test the hypothesis that the happiness children derive from experiences will increase with age, we computed correlations between age and the number of goods and experiences mentioned by each participant. Consistent with our hypothesis, age was positively correlated with the number of experiences ( $r = 0.61, p < .001$ ). Thus, as children aged, the number of experiences they mentioned in response to what makes them happy increased. In contrast, age was uncorrelated with the number of goods mentioned by each participant ( $r = 0.20, p = .15$ ). The difference between the correlations is significant ( $z = 2.61, p < .001$ ).

We also analyzed the data as a function of well-established developmental age groups (Ginsburg & Oppen, 1988; John, 1999), because experiences and goods that are popular are typically confined within age cohorts (classmates, friends) and not necessarily by chronological age. The number of goods did not differ across age groups ( $F(2, 53) = 0.76, p > .47$ ), but the number of experiences mentioned did ( $F(2, 53) = 16.04, p < .001$ ). As Fig. 1 shows, the number of mentions of experiences in response to what makes participants happy increased with each successive age group ( $M_{3-5} = 0.65, SD = 0.81$  vs.  $M_{6-9} = 1.50, SD = 0.92, t(36) = 3.02, p = .005$ ;  $M_{6-9} = 1.50, SD = 0.92$  vs.  $M_{10-12} = 2.39, SD = 1.09, t(34) = 2.64, p = .013$ ), but the number of mentions of goods across age groups did not differ ( $ps > 0.50$ ). Importantly, none of the relations (correlations or group comparisons) changed when we used proportions of goods and experiences as the outcome variable, indicating that the observed relations are not a function of age differences in total number of goods and experiences mentioned (see Web Appendix B for a graph of the proportions as a function of age).

We also compared the number of goods and the number of experiences as a function of age group. Also as expected, across all children, goods were mentioned more often than experiences ( $M = 2.79, SD = 1.40$  vs.  $M = 1.48, SD = 1.18, t(1, 55) = 5.22, p < .001$ ), and the difference was significant for each age group ( $ps = 0.001, 0.02, \text{ and } 0.083$  for the youngest, middle, and oldest age groups, respectively). To better highlight the relative difference, we calculated the difference between the number of experiences and goods (a positive number indicates more experiences were mentioned than goods). The size of the difference is most pronounced in the two younger age groups, children ages 3–5 ( $M = -1.85, SD = 1.66$ ) and 6–9 ( $M = -1.33, SD = 2.25$ ), which did not differ ( $p = .43$ ). By age 10–12, the difference is significant compared to the youngest group ( $M = -0.67, SD = 1.53$  vs.  $M = -1.85, SD = 1.66; t(1, 36) = 2.27, p = .029$ ).

These results indicate that young children find more happiness in goods than experiences, but this relative difference decreases with age. More specifically, the declining relative difference as a function of age is driven by increases in happiness from experiences, whereas happiness from goods is relatively constant. Finally, this general pattern of increasing happiness from experiences but not goods results in a relative difference that is only marginally significant for the oldest age group ( $p = .083$ ). The general trend suggests that for older children and adolescents (i.e., >12 years old), the apparent “material goods advantage” for younger children may eventually disappear, and even emerge into the experiential advantage observed in research with adults.

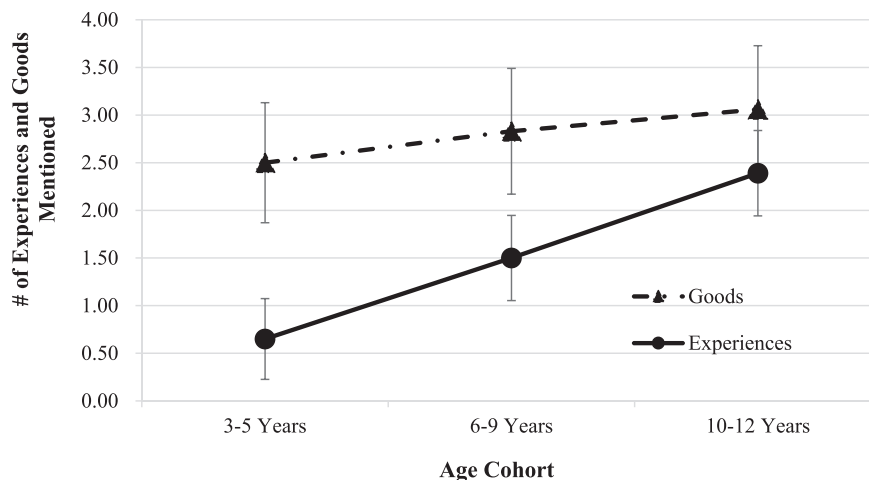


Fig. 1. Study 2: Open-ended responses by age cohort.

Study 2 provides additional support for our hypotheses that the happiness that children derive from experiences increases with age, and these results hold regardless of whether age is treated as a continuous variable or grouped by age cohort. These results are also consistent with our reasoning that it is the development of critical social-cognitive abilities (memory and theory of mind) that facilitates understanding and appreciating experiences, but not goods. That is, because goods are tangible and concrete, they should be relatively easy to comprehend and recall, and thus improvements in memory that develop with age should have relatively little effect. Similarly, because goods by themselves do not require perspective-taking, theory of mind skills that develop with age should also have little effect. In Study 3, we directly test these propositions.

### 7. Study 3: age differences and cognitive abilities

Study 3 had three primary objectives. The first was to expand the age range to include adolescents (13–17 years old). The general trends for happiness from experiences and from goods observed in Study 2 suggest that older children may derive more happiness from experiences than from goods. Study 3 tests this proposition. Second, we wanted to test the robustness of our findings by including additional measures of happiness from goods and experiences. In particular, we wanted to retain the general objectives of the open-ended format (use participant-generated measures) but include tasks that are less cognitively taxing. Although even the youngest children were able to perform the free recall task used in Study 2, it may be that the task difficulty suppressed findings (e.g., by restricting range).

Thus, in Study 3, we included two additional measures, along with the open-ended format. One is a collage methodology (Chaplin & John, 2007; Chaplin & Lowrey, 2010) that captures an array of experiences and goods that are salient across ages, and does not require advanced verbal abilities in order to provide meaningful responses, making it a suitable measure for use with children. A collage is a collection of images to illustrate a concept. Participants created a collage using images of experiences and goods in order to answer the question, “What makes you happy?” The images were developed directly from the open-ended responses from Study 2.

Like the open-ended responses, even though we asked the question in the present tense, the task is effectively a recognition-then-recall task, and thus retrospective. Children must first recognize an experience or good depicted in the images, then recall their experiences with it to determine how happy it made them. The recognition aid should thus be easier than the unaided recall for the open-ended question. Finally, we measured happiness with experiences and goods using a 5-point scale in which participants indicated how happy each image (a good or an experience) they placed on their collage made them. This scale measure allows for direct assessment of how happy each good or experience makes children, as opposed to the use of the total mentions of goods and experiences as measures of happiness.

The third objective of Study 3 was to test our process hypotheses. We expected that improvements in memory and theory of mind would predict changes in happiness from experiences, leading to a greater appreciation of the happiness that experiences can provide. We also hypothesized that from a cross-sectional perspective, younger children would derive more happiness from goods than from experiences, but that happiness from experiences would increase with age, and at some point, would exceed the happiness derived from goods, consistent with extant research. We also hypothesized that memory and theory of mind would mediate this relation.

#### 7.1. Method

##### 7.1.1. Participants, design, and procedure

Two-hundred and forty-two children and adolescents participated. Two participants were excluded because they were too distracted to complete the study tasks, leaving a total of 240 participants for analyses: fifty-seven 3–5-year-olds (24 girls), forty-five 6–9-year-olds (22 girls), forty-six 10–12-year-olds (23 girls), forty-five 13–15-year-olds (22 girls), and forty-seven 16–17-year-olds (22 girls). Participants were recruited over a 10-month period from childcare centers and summer camps in the northeastern U.S. Children were given a T-shirt in exchange for participating.

Participants were interviewed individually, with each session taking 30–45 min to complete. After a brief description of the study, participants completed tasks measuring the degree to which experiences and goods make them happy. The first was the same open-ended measure used in Study 2. The second task was a collage exercise (described in the following section) in which participants were asked to answer, “What makes you happy?” by creating a collage using different experiences and goods. The third task had children rate how happy each of their collage items made them. Each task was described and demonstrated by the interviewer. Next, participants completed memory and theory of mind measures. Participants were then debriefed, asked not to talk about the study until its completion, and compensated with a T-shirt for their participation.

##### 7.1.2. Happiness collages

Participants built a collage in answer to the question “What makes you happy?” The collage stimuli were images of experiences or goods. Participants placed as many images as they wanted on a large poster board (Chaplin & John, 2007). The collage stimuli consisted of 60 pictures (30 experiences, 30 goods; Web Appendix C). Collage images were developed from Study 2, using children of the same age range and from the same population. Blank cards were available for participants to write their own concepts if they desired. Collage stimuli were selected to appeal to a wide range of interests and be appealing for each gender. There were two sets of images, one used by children ages 3–12 and the other by adolescents of ages 13–17. The two sets of stimuli shared 50 out of 60 images, and the 10 that differed (6 experiences and 4 goods) were changed to be age-appropriate. The experience



images showed similar activities being performed by younger versus older children (e.g., an image of younger children climbing on an indoor jungle gym was replaced with adolescents scaling an indoor climbing wall). The goods images were replaced with age-appropriate items (e.g., Elmo™ was replaced with Kung Fu Panda™).

Participants were given as long as they wanted to complete the task, and finished collages were photographed (for an example, see Web Appendix D). We recorded the number of goods images and the number of experiences images that were chosen. Next, participants were asked to think about what makes them the happiest. They were instructed to remove half of the images from their board, to leave only those images that make them the happiest. This reduced collage required participants to make trade-offs, encouraging them to think carefully about their choices (Chaplin & John, 2007). The reduced collages were also photographed. The pattern of results for the reduced collages mirrored that of the full collages, and therefore we report findings for the full collages.

Finally, we had children rate their level of happiness with each good or experience left on their reduced collage. To ensure that the goods and experiences were correctly understood by the participants, they were also asked to classify each image on their collage as “a thing” or “something you do.” All participants correctly categorized all images.

## 7.2. Measures

### 7.2.1. Happiness

We computed three primary measures of happiness derived from experiences and goods. The first is the sum of the coded open-ended responses that were experiences and goods, the same measure used in Study 2. Inter-rater reliability was acceptable ( $r = 0.86$ ) and disagreements were resolved through discussion. The second measure is the number of experiences and goods that participants placed on their full collages. For the third measure, participants were asked to indicate along a 5-point smiley face scale how happy each of the images (a good or an experience) on the reduced collage made them. The size of the smiley face indicated level of happiness (1 = smallest smiley face; 5 = biggest smiley face).

Although there is some redundancy between these measures, each provides unique information. Separate collage measures for experiences and goods allow for a comparison of each measure across age groups. Proportions address the possibility that a positive relation between age and number of experiences mentioned is the result of an increase in the total number of images placed on a collage (Chaplin & John, 2005, 2007). Both the happiness ratings of the individual collage items and the open-ended responses address the possibility that the counts from the collage task are due to age-related confounds regarding the types of experiences that were used for the collage task (e.g., difficulty, prior experience).

The happiness ratings in particular arguably provide a conservative test of our hypotheses. For example, a collage for a very young child that has five images of goods and only one image of an experience would support our hypotheses. However, if the happiness rating of that single experience was no different from or was more favorable than the mean of the happiness ratings for the five goods, our hypotheses would be refuted (recall that the happiness ratings are on the reduced collage [reduced by half], and thus represent images that are the most important out of the original set). The pattern of results was consistent (both general patterns and statistical significance) across all measures. The happiness measure also most closely resembles measures typically used in adult studies (rating how much happiness a recalled experience or good brings).

### 7.2.2. Memory

Memory was measured with two tasks commonly used with children. For both, participants were told to look at the stimuli and try to remember them. The first was Case's (1985) Mr. Peanut Task (see Web Appendix E), in which participants looked at an image of a character shaped like a peanut with six colored dots for 6 s, at which point the image was taken away and replaced by the same page without the colored dots. The participants' task was to place the correct colored dots in the correct spots to recreate the image (theoretical range: 0–6). In the second task, participants viewed a page of 20 pictures for 30 s, after which it was removed. Participants recalled as many of the pictures as they could (theoretical range: 0–20; Hazen & Volk-Hudson, 1984; Kannass, Plumert, McDermott, Moore, & Durich, 2004). We computed a memory score by summing the total number of correct recalls across the two measures (theoretical range: 0–26).

### 7.2.3. Theory of mind

Theory of mind was measured using three false belief tasks (see Web Appendix F). False belief tasks assess children's ability to think about another's thoughts and how those thoughts guide the other's behavior (McAlister & Peterson, 2006). More specifically, false belief tasks measure the extent to which a child can infer that another person does not know what they know. In a standard false belief task such as the Sally and Anne task, a child witnesses an event, typically enacted with dolls, in which Sally places an object in her basket and leaves the room. Anne then comes in and moves the object to her own basket. The child participant is then asked to predict where Sally will look for the object. Pre-theory of mind children cannot correctly predict the doll's uninformed behavior because they gain knowledge from witnessing the event and cannot take the perspective of the uninformed doll.

We used three measures of theory of mind: the Sally and Anne task (Baron-Cohen, Leslie, & Frith, 1985), the Cookie Box misleading container test (Gopnik & Astington, 1988), and the Duck and Lion social test (Nguyen & Frye, 1999), the latter designed to test a more mature theory of mind. For each task, participants needed to pass control questions (to assess whether they were paying attention and following the details of the story), and the test question, to score one point on the task. All participants passed the control questions. The results of each task were summed (theoretical range: 0–3) to form a composite measure of theory of mind (McAlister & Peterson, 2006).

### 7.3. Results

#### 7.3.1. Preliminary analyses

Means, standard deviations, and correlations among the constructs are presented in Appendix A and Web Appendix G, respectively.

We tested all hypotheses using the three measures of happiness from experiences and from goods (open-ended responses, number and proportions of collage images, happiness ratings of each reduced collage image). As Appendix A shows, the pattern of results is consistent (both general patterns and statistical significance) across all measures of happiness. Regardless of the measures used, happiness with experiences increased with age.

#### 7.3.2. Hypothesis testing: open-ended response

Consistent with our hypotheses, and replicating the findings of Study 2, age was positively correlated with the number of experiences mentioned by participants in the open-ended questions ( $r = 0.62, p < .001$ ), but not with the number of goods. In fact, the correlation between age and number of goods mentioned was negative ( $r = -0.39, p < .001$ ). The difference between the correlations is significant ( $z = 12.42, p < .001$ ). However, as Fig. 2 shows, this negative correlation is driven primarily by a lower number of goods mentioned by the older groups. For ages 3–12, the results are virtually identical to those in Study 2.

We also analyzed the data as a function of age group cohort (see Fig. 3). The number of experiences differed across age groups ( $F(4, 235) = 40.42, p < .001$ ). The number of mentions of experiences in response to what makes participants happy increased with each successive age group except the last one ( $M_{3-5} = 0.89$  vs.  $M_{6-9} = 1.82, t(100) = 4.02, p < .001$ ;  $M_{6-9} = 1.82$  vs.  $M_{10-12} = 2.74, t(89) = 2.48, p = .015$ ;  $M_{10-12} = 2.74$  vs.  $M_{13-15} = 4.00, t(89) = 3.26, p = .002$ ;  $M_{13-15} = 4.00$  vs.  $M_{16-17} = 3.98, t(90) = 0.07, p = .95$ ). Although participants' mentions of goods in response to what makes them happy differed across age groups ( $F(4, 235) = 22.57, p < .001$ ), with older children mentioning fewer goods than younger children, the age differences did not emerge until the transition period sometime between late childhood and early adolescence ( $M_{10-12} = 3.57$  vs.  $M_{13-15} = 1.16, t(89) = 5.92, p = .002$ ;  $M_{13-15} = 1.16$  vs.  $M_{16-17} = 0.57, t(90) 2.32, p = .02$ ).

These results suggest that happiness derived from experiences increases across ages starting from early childhood through late adolescence. However, the happiness children derive from goods is relatively constant throughout childhood. A significant decrease in happiness derived from goods eventually emerges, but not until children transition from late childhood into early adolescence. Moreover, the "crossover point" at which goods and experiences bring the same amount of happiness occurs sometime after age 12.

#### 7.3.3. Hypothesis testing: collage counts

We also analyzed the data as a function of both collage counts of experiences and goods and happiness ratings of each experience and good on the reduced collages. The results are virtually identical. Age is positively correlated with the number of experiences on the collages ( $r = 0.67, p < .001$ ), and with participants' ratings of how happy each experience made them ( $r = 0.64, p < .001$ ). In contrast, age is negatively correlated with the number of goods on the collages ( $r = -0.32, p < .001$ ), and uncorrelated with the happiness ratings of these goods ( $r = 0.007, p < .92$ ). The difference between the correlations for goods and for experiences is significant for number of items ( $z = 12.49, p < .001$ ) as well as happiness ratings ( $z = 8.21, p < .001$ ).

Next, we analyzed age-related changes using age cohorts. In order to control for possible increases in total number of images with age, we computed the proportion of experiences placed on the collage (experiences/total). Proportions below (above) 0.50 indicate more experiences (goods) on the collages. We expected that the youngest children would select proportionally more

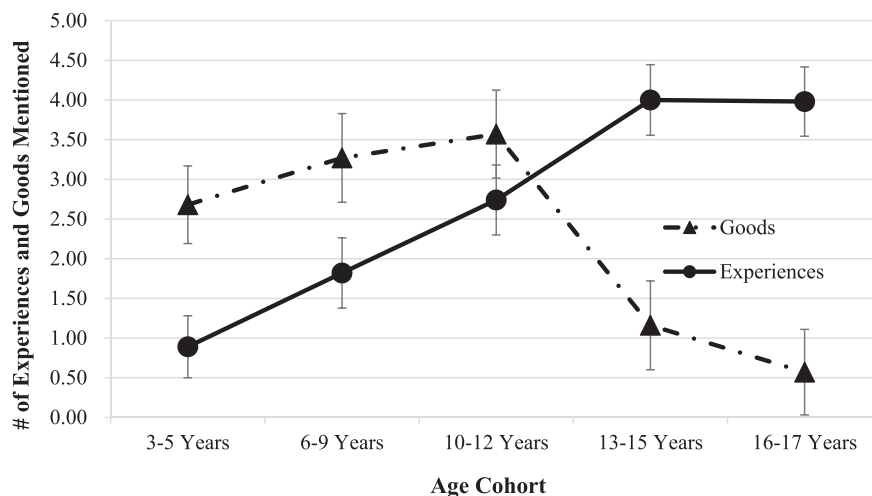


Fig. 2. Study 3: Open-ended responses by age.

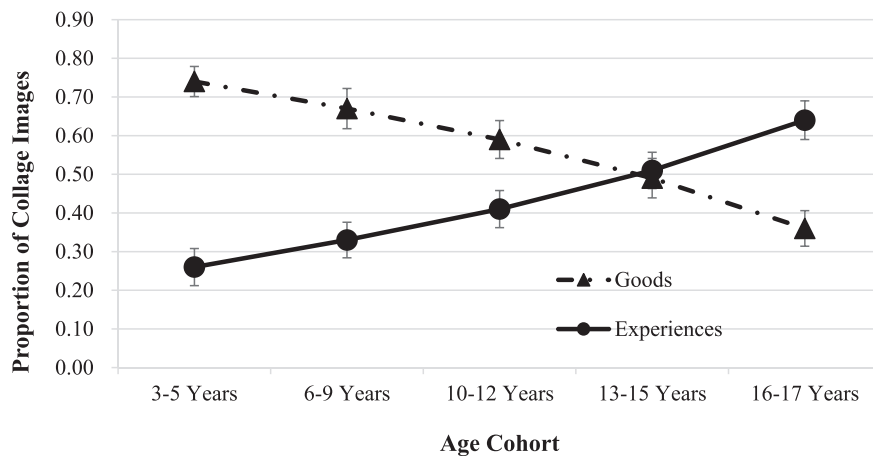


Fig. 3. Study 3: Proportion of happiness collage images (experiences vs. goods) by age.

goods than experiences for their collages, but this difference would decrease with age, to the point that older adolescents would select more experiences than goods.

We first tested the age trend prediction. A one-way ANOVA indicated that the proportion of experiences differed across age groups ( $F(4, 235) = 39.79, MSE = 1.11, p < .001$ ). The results of this analysis can be seen in Fig. 3. Young children (ages 3–12) derived more happiness from experiences than from goods within each age group (contrast  $ps < 0.01$ ). However, for 13–15-year-olds, the proportion of experiences to goods did not differ from 0.50 ( $M = 0.51, SD = 0.14, t(44) = 0.37, p = .715$ ), and for 16–17-year-olds, the proportion was reversed and significant ( $M = 0.64, SD = 0.13, t(46) = 7.12, p < .001$ ). These results are consistent with the open-ended results in terms of the crossover point at which goods and experiences bring equal amounts of happiness, in this case for the 13–15-year-old age cohort.

Contrasts between each successive age group also indicated that the proportion of experiences increased with age. Consistent with our predictions, 3–5-year-olds ( $M = 0.26, SD = 0.11$ ) selected proportionally fewer experiences for their collages than did 6–9-year-olds ( $M = 0.33, SD = 0.23, t(100) = 1.79, p = .07$ ), who selected fewer experiences than did 10–12-year-olds ( $M = 0.41, SD = 0.20, t(89) = 1.84, p = .07$ ), who selected fewer experiences than did 13–15-year-olds ( $M = 0.51, SD = 0.14, t(89) = 2.71, p = .008$ ), who selected fewer experiences than did 16–17-year-olds ( $M = 0.64, SD = 0.14, t(90) = 4.60, p < .001$ ).

#### 7.3.4. Hypothesis testing: happiness ratings

The pattern of results for the relation between age and happiness ratings also supports our hypotheses, and is virtually identical to the pattern noted for the other measures. For brevity, we show here only the graph of the findings (Fig. 4); the full means and significance results can be found in Appendix A.

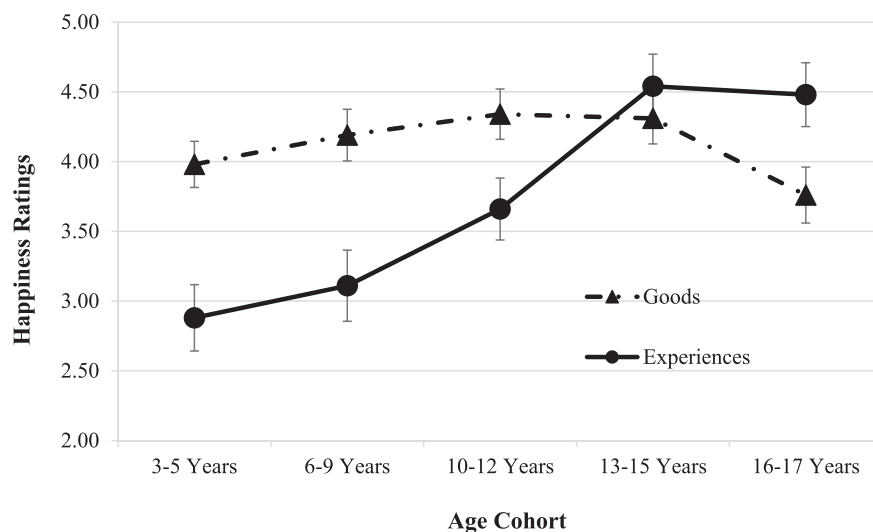


Fig. 4. Study 3: Happiness ratings of collage experiences and goods by age.

The results provide highly convergent findings that younger children find greater happiness in goods than experiences, but that happiness from experiences increases with age, to the point that older adolescents find more happiness in experiences than goods. For all measures, the crossover point (goods and experiences valued equally) occurs around age 13–15 years, after which experiences provide more happiness than do material goods, consistent with findings for adults.

### 7.3.5. Hypothesis testing: memory and theory of mind mediation

We hypothesized that the positive relation between age and happiness from experiences would be mediated by both memory and theory of mind. A preliminary analysis showed that, as expected, age is highly correlated with both memory ( $r = 0.78$ ,  $p < .001$ ) and theory of mind ( $r = 0.80$ ,  $p < .001$ ), consistent with developmental research. Memory is also positively correlated with happiness from experiences, regardless of whether the measurement of happiness was open-ended responses ( $r = 0.49$ ,  $p < .001$ ), number of experiences placed on collages ( $r = 0.54$ ,  $p < .001$ ), or happiness ratings ( $r = 0.49$ ,  $p < .001$ ). Theory of mind is also positively correlated with happiness from experiences (open-ended responses:  $r = 0.52$ ,  $p < .001$ ; number of experiences placed on collages:  $r = 0.51$ ,  $p < .001$ ; happiness ratings:  $r = 0.52$ ,  $p < .001$ ).

Next, we tested whether memory and theory of mind each mediate the relation between age and happiness from experiences. Mediation analyses in developmental research can pose challenges because of multicollinearity, particularly when looking at the effects of age and cognitive functioning, which are typically highly correlated during early development (Grosse Wiesmann, Schreiber, Singer, Steinbeis, & Freiderici, 2017). Thus, we first tested for potential multicollinearity using simple regression, prior to testing for mediating effects. The results showed a VIF value of 4.009 and a tolerance of 0.249 for age, which are above the accepted criteria (VIF of 2.5 and tolerance of 0.04; Allison, 1999), indicating that multicollinearity is an issue.

To overcome this issue, we conducted commonality analyses (Nimon, Lewis, Kane, & Haynes, 2008) for each mediator. Commonality analysis is a regression-based analysis that partitions the explained variance of the dependent variable into the shared and unique contribution of the independent variable and the mediator. Extracting the unique contribution of the independent variable, as well as the unique contribution of the mediator, allows assessment of the unique variance of the dependent variable that is attributed to the mediated effect (Fairchild, MacKinnon, Taborga, & Taylor, 2009).

**7.3.5.1. Commonality analysis of memory.** The commonality analysis of the regression of age and memory on the number of experiences placed on the collage revealed a significant mediation effect for memory. The unique contribution of the mediated effect—the extent to which age contributes to the variance of memory, which in turn contributes to the variance of the number of experiences on the collage—was significant ( $r^2 = 0.289$ ;  $t = 11.05$ ,  $p < .001$ ), and accounted for 64.6% of the explained variance. In addition, both the total ( $r^2 = 0.446$ ;  $t = 13.743$ ,  $p < .001$ ) and the unique ( $r^2 = 0.158$ ;  $t = 8.166$ ,  $p < .001$ ) contribution of age to the explained variance of the number of experiences on the collage were significant. The unique contribution of age accounted for 35.2% of the explained variance of the number of experiences on the collage.

Similarly, the total contribution of memory to the explained variance of the number of experiences on the collage was also significant ( $r^2 = 0.289$ ;  $t = 11.068$ ,  $p < .001$ ), but the unique contribution of memory to the explained variance of the number of experiences on the collage was not significant ( $r^2 = 0.008$ ;  $t = 0.308$ ,  $p = .488$ ), and accounted for only 0.2% of the explained variance. These results indicate that memory partially mediates the effect of age on the number of experiences on the collage. As children mature, their memory improves, and positively contributes to an increase in their happiness from experiences.

**7.3.5.2. Commonality analysis of theory of mind.** The commonality analysis of the regression of age and theory of mind on the number of experiences on the collage revealed that the unique contribution of the mediated effect—the extent to which age contributes to the variance of theory of mind, which, in turn, contributes to the variance of the number of experiences on the collage—was significant ( $r^2 = 0.243$ ;  $t = 10.176$ ,  $p < .001$ ), and accounted for 54.1% of the explained variance. In addition, both the total ( $r^2 = 0.446$ ;  $t = 13.783$ ,  $p < .001$ ) and the unique ( $r^2 = 0.203$ ;  $t = 9.296$ ,  $p < .001$ ) contribution of age to the explained variance of the number of experiences on the collage were significant. The unique contribution of age accounted for 45.1% of the explained variance of the number of experiences on the collage. Similarly, the total contribution of theory of mind to the explained variance of the number of experiences on the collage was significant ( $r^2 = 0.247$ ;  $t = 10.255$ ,  $p < .001$ ), but the unique contribution of theory of mind was not significant ( $r^2 = 0.004$ ;  $t = 1.268$ ,  $p = .101$ ), and accounted for only 0.8% of the explained variance of the number of experiences on the collage. These results indicate that theory of mind partially mediates the effect of age on the number of experiences on the collage. As children mature, their theory of mind improves, and positively contributes to an increase in their happiness from experiences.

## 7.4. Discussion

The results of Study 3 replicate the findings of the first three studies, showing that young children indicate that goods make them happier than do experiences, but that this relative difference decreases with age, to the point that experiences make older children (adolescents) happier than do goods. Moreover, we again show that this effect is driven by the increase in happiness from experiences as children age. These results are conceptually consistent with the results of Study 1A and Study 1B, over a similar age range, but with different measures of happiness from goods and experiences, and a larger sample size. The results of this study also fully replicate the findings of Study 2 for children 3–12 years old, using the same measure of happiness (open-ended responses), but also expands the age range to include older children and adolescents. In addition, the findings of Study 3 are highly consistent across multiple measures of happiness from goods and experiences, measures that are conceptually different



(open-ended responses, collage measures, happiness scale responses). Finally, Study 3 provides support for our process explanation for the age effects, showing that increases in happiness from experiences with age are mediated by two different measures of cognitive development: memory and theory of mind.

## 8. General discussion

People like feeling happy, which they can achieve in multiple ways: engaging in hobbies and activities, interpersonal relationships, or buying and using material goods. There is mounting evidence that experiences in particular are a rich source of happiness, and more so than material goods, at least for adults (Gilovich & Gallo, 2020). The current research investigated whether this experiential advantage in conveying happiness applies to children as well. Across four studies with children ages 3–17, and using different methodologies, we provide converging evidence that young children do not find more happiness—either prospective (Study 1A and 1B) or retrospective (Studies 2 and 3)—in past experiences than in goods, but in fact just the opposite. At very young ages, children clearly indicate that goods make them happier than do experiences. However, as children age, the happiness they derive from experiences progressively increases, but the happiness they derive from material goods does not, to the point that in later adolescence, the happiness children derive from experiences eventually surpasses the happiness they derive from material goods, consistent with extant research with adults.

Our research also provides a theoretical framework that can explain these differential effects, and in doing so addresses the questions of when and how these effects occur. Using a child developmental framework, we show why children's ability to derive happiness from experiences increases with age. Experiences are complicated constructs (much more so than typical goods). Experiences are abstract, are relatively difficult to compare, and are often shared with others to facilitate social interactions. Consequently, they require a significant amount of cognitive sophistication to merely appreciate them, as appreciation for past experiences requires comprehension, memory, and interpretation of the experience and its implications. Young children are generally deficient in these abilities.

The current research focused on two cognitive ability variables: memory and theory of mind. A good memory contributes to the enjoyment of experiences in several ways. A good memory not only facilitates the cognitive integration of new experiential information, but also allows for retrospective enjoyment of past experiences. A good memory is also essential to learning, and good recall of previous experiences (particularly pleasant ones) increases the likelihood that people will make future choices that make them happy. In addition, theory of mind facilitates happiness from experiences. The better that people can accurately comprehend and predict others' thoughts and behaviors and attend to social aspects of experiences, the more likely they are to enjoy experiences, particularly ones that are social.

Our research contributes to two research areas. The first is research that has focused on the subjective distinctions between experiences and goods in terms of the pleasure they provide, which to our knowledge has exclusively sampled adults. The general consensus is that adults derive more happiness from experiences than from goods, and thus would be better served (happier) if they spent their money on experiences rather than on goods (Gilovich & Kumar, 2015). Our findings show that this preference for experiences over goods is in place by late adolescence, but that it takes time for children to develop the cognitive skills needed to appreciate experiences. Thus, our research provides a boundary condition for the general conclusion that experiences provide a happiness premium over goods.

Our research also contributes by providing a process explanation for these effects: increases in social-cognitive sophistication (memory and theory of mind) facilitate the happiness that experiences provide. Although there are undoubtedly a number of other contributors to deriving happiness from experiences, such as social facilitation (Caprariello & Reis, 2013), uniqueness (Rosenzweig & Gilovich, 2012), and self-connection (Carter & Gilovich, 2012), memory and theory of mind arguably represent “upstream” variables—both cognitively and developmentally—and thus are likely precursors to these process explanations. Indeed, there are other changes that occur with age that might impact happiness derived from experiences. Young children play with toys more than adolescents as a matter of course, whereas adolescents have more experiential autonomy than do young children. Thus, “collections” of experiences versus goods vary with age, and frequency of interactions can influence the happiness they bring (Weidman & Dunn, 2016). That said, however, given that both young children and adolescents find happiness with both experiences and goods, the social-cognitive sophistication (memory and theory of mind as mediators) theoretical framework seems to be the likely mechanism for prospective and retrospective happiness measures.

In fact, our process findings are consistent with proposed mechanisms for adults. Certain factors have been suggested or documented for why experiences provide more happiness than goods do. Those factors are numerous: rumination, memory reconstruction, self-connections, social facilitation. We argue that these factors are representative of a more superordinate category of cognitive sophistication. Prior research shows that in populations in which these cognitive skills are well-developed, the skills explain why experiences provide more happiness than material goods (Gilovich & Gallo, 2020). We take a Lewinian perspective by investigating barriers to these processes (Lewin, 1938; see Gilovich & Medvec, 1995), namely in children, who are deficient in these skills (compared to adults, because the skills are not yet fully developed). We show that deficiencies in these cognitive skills can account for why young children derive more happiness from goods than from experiences, and also why this relative relation changes over time to the point that older adolescents' happiness from experiences versus goods resembles that of adults.

Although we have proposed and demonstrated that children derive more happiness from experiences than from material goods, we emphasize that these experiences refer to retrospective and prospective ones, consistent with virtually all of the research on happiness from goods and experiences with adults. It is obvious to most people that children do love experiences. Entire industries (e.g., theme parks such as Disneyland) are built around this premise. Similarly, in the opening vignette, the son was

clearly ecstatic throughout the event. However, retrospectively, what dominated his thoughts were the gifts—the material goods—he received. Retrospective and prospective judgments about experiences require sufficient cognitive development to recall and appreciate them, which allows them to provide enduring happiness beyond the moment. And when children's cognitive skills are sufficiently developed, the experiences do return a premium, just as they do for adults.

## 9. Conclusion

Happiness emanates from many sources. People derive happiness from both experiences and goods. However, research suggests that both are not valued equally. People derive more retrospective happiness from experiences than they do from goods. Our research confirms these findings, but with an important caveat. Deriving more happiness from experiences than from goods is not innate, but a developmental process that unfolds throughout childhood and adolescence. The thrill of goods during childhood is a phase that all children go through. Having good memory and theory of mind set the stage for children to appreciate the benefits of experiences. Check back when the first author's son is a teenager and his thrills might be typical experiential thrills. Until then, he will be more enthralled with cosmic things than with cosmic experiences.

## Appendix A. Study 3: happiness measures for experiences vs. material goods

	1	2	3	4	5	6
	Collage (# experiences)	Collage (# goods)	Open-ended (# experiences)	Open-ended (# goods)	Happiness ratings (experiences)	Happiness ratings (goods)
<b>Full sample</b> (ages 3–17)	7.22 <sub>1</sub> (3.93)	9.77 <sub>1</sub> (4.41)	2.61 <sub>8</sub> (1.95)	2.26 <sub>8</sub> (2.21)	3.78 <sub>16</sub> (1.01)	4.12 <sub>16</sub> (0.65)
<b>Children vs. adolescents</b>						
Children (ages 3–12)	5.30 <sub>i,2</sub> (2.85)	11.05 <sub>j,2</sub> (4.45)	1.75 <sub>k,9</sub> (1.70)	3.14 <sub>9</sub> (2.23)	3.25 <sub>m,17</sub> (0.99)	4.16 <sub>17</sub> (0.66)
Adolescents (ages 13–17)	10.30 <sub>i,3</sub> (3.43)	7.71 <sub>j,3</sub> (3.49)	3.99 <sub>k,10</sub> (1.49)	0.86 <sub>10</sub> (1.23)	4.52 <sub>m,18</sub> (0.38)	4.06 <sub>18</sub> (0.64)
<b>By age group</b>						
Ages 3–5	4.00 <sub>a,4</sub> (1.93)	10.70 <sub>4</sub> (4.09)	0.89 <sub>c,11</sub> (1.03)	2.68 <sub>11</sub> (1.94)	2.88 <sub>19</sub> (0.80)	3.98 (0.70)
Ages 6–9	5.24 <sub>a,5</sub> (3.28)	11.51 <sub>5</sub> (5.05)	1.82 <sub>c,12</sub> (1.30)	3.27 <sub>12</sub> (2.38)	3.11 <sub>e,20</sub> (0.92)	4.19 <sub>20</sub> (0.70)
Ages 10–12	6.96 <sub>a,6</sub> (2.53)	11.02 <sub>b,6</sub> (4.31)	2.74 <sub>c,13</sub> (2.12)	3.57 <sub>d,13</sub> (2.35)	3.66 <sub>e,21</sub> (1.05)	4.34 <sub>21</sub> (0.52)
Ages 13–15	9.67 <sub>a</sub> (3.85)	9.27 <sub>b</sub> (3.55)	4.00 <sub>c,14</sub> (1.51)	1.16 <sub>d,14</sub> (1.40)	4.54 <sub>e</sub> (0.38)	4.31 <sub>f</sub> (0.56)
Ages 16–17	10.91 <sub>a,7</sub> (2.88)	6.21 <sub>b,7</sub> (2.71)	3.98 <sub>15</sub> (1.50)	0.57 <sub>d,15</sub> (0.97)	4.48 <sub>e,22</sub> (0.39)	3.76 <sub>f,22</sub> (0.61)

Note. Means sharing letter subscripts within a column differ significantly ( $p < .05$ ). Means sharing number subscripts across columns #1 vs. #2 (# of collage experiences vs. goods); #3 vs. #4 (open-ended mentions of experiences vs. goods); and #5 vs. #6 (happiness ratings for experiences vs. goods) differ significantly ( $p < .05$ ). Numbers in parentheses represent standard deviations.

## Appendix B. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.ijresmar.2020.01.004>.

## References

- Allison, P. D. (1999). *Multiple regression: A primer*. Thousand Oaks, CA: Pine Forge Press.
- Arnould, E. J., & Price, L. L. (1993). River magic: Extraordinary experience and the extended service encounter. *Journal of Consumer Research*, 20(1), 24–45.
- Baron-Cohen, S., Leslie, A. M., & Frith, U. (1985). Does the autistic child have a theory of mind? *Cognition*, 21(1), 37–46.
- Bastos, W., & Brucks, M. L. (2017). How and why conversational value leads to happiness for experiential and material purchases. *Journal of Consumer Research*, 44(3), 598–612.
- Bauer, P. J., Burch, M. M., Scholin, S. E., & Güler, O. E. (2007). Using cue words to investigate the distribution of autobiographical memories in childhood. *Psychological Science*, 18(10), 910–916.
- Bjorklund, D. F. (1987). How age changes in knowledge base contribute to the development of children's memory: An interpretive review. *Developmental Review*, 7(2), 93–130.
- Bridge, D. J., & Voss, J. L. (2014). Active retrieval facilitates across-episode binding by modulating the content of memory. *Neuropsychologia*, 63, 154–164.
- Caprariello, P. A., & Reis, H. T. (2013). To do, to have, or to share? Valuing experiences over material possessions depends on the involvement of others. *Journal of Personality and Social Psychology*, 104(February), 199–215.

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- Carter, T. J., & Gilovich, T. (2010). The relative relativity of material and experiential purchases. *Journal of Personality and Social Psychology*, 98(1), 146–159.
- Carter, T. J., & Gilovich, T. (2012). I am what I do, not what I have: The differential centrality of experiential and material purchases to the self. *Journal of Personality and Social Psychology*, 102(6), 1304–1317.
- Case, R. (1985). *Intellectual development: Birth to adulthood*. Orlando, FL: Academic Press.
- Chan, C., & Mogilner, C. (2017). Experiential gifts foster stronger social relationships than material gifts. *Journal of Consumer Research*, 43(6), 913–931.
- Chaplin, L. N., & John, D. R. (2005). The development of self-brand connections in children and adolescents. *Journal of Consumer Research*, 32(1), 119–129.
- Chaplin, L. N., & John, D. R. (2007). Growing up in a material world: Age differences in materialism in children and adolescent. *Journal of Consumer Research*, 34(4), 480–493.
- Chaplin, L. N., & John, D. R. (2010). Interpersonal influences on adolescent materialism: A new look at the role of parents and peers. *Journal of Consumer Psychology*, 20(2), 176–184.
- Chaplin, L. N., & Lowrey, T. M. (2010). The development of consumer-based consumption constellations in children. *Journal of Consumer Research*, 36(5), 757–777.
- Coke, J. S., Batson, C. D., & McDavis, K. (1978). Empathic mediation of helping: A two-stage model. *Journal of Personality and Social Psychology*, 36(7), 752–766.
- Dumontheil, I., Apperly, I., & Blakemore, S. J. (2010). Online usage of theory of mind continues to develop in late adolescence. *Developmental Science*, 13(2), 331–338.
- Epley, N., & Waytz, A. (2010). Mind perception. In S. T. Fiske, D. T. Gilbert, & G. Lindzey (Eds.), *The handbook of social psychology* (pp. 498–541) (5th ed.). New York, NY: Wiley.
- Fairchild, A. J., MacKinnon, D. P., Taborga, M. P., & Taylor, A.B. (2009). R<sup>2</sup> effect-size measures for mediation analysis. *Behavior Research Methods*, 41(2), 486–498.
- Gilovich, T., & Gallo, I. (2020). Consumers' pursuit of material and experiential purchases: A review. *Consumer Psychology Review*, 3 (forthcoming).
- Gilovich, T., & Kumar, A. (2015). We'll always have Paris: The hedonic payoff from experiential and material investments. In J. M. Olson, & M. P. Zanna (Eds.), *Advances in experimental social psychology*. Vol. 51. (pp. 147–187). Burlington, VT: Academic Press.
- Gilovich, T., & Medvec, V. H. (1995). The experience of regret: What, when, and why. *Psychological Review*, 102(2), 379–395.
- Ginsburg, H., & Opper, S. (1988). *Piaget's theory of intellectual development*. Englewood Cliffs, NJ: Prentice-Hall.
- Goodman, J. K., Malkoc, S. A., & Rosenboim, M. (2019). The material-experiential asymmetry in discounting: When experiential purchases lead to more impatience. *Journal of Consumer Research*, 46(4), 671–688.
- Goodman, J. K., Malkoc, S. A., & Stephenson, B. L. (2016). Celebrate or commemorate? A material purchase advantage when honoring special life events. *Journal of the Association for Consumer Research*, 1(4), 497–508.
- Gopnik, A., & Astington, J. W. (1988). Children's understanding of representational change and its relation to the understanding of false belief and the appearance-reality distinction. *Child Development*, 59(1), 26–37.
- Greenwald, A. G. (1981). Self and memory. In G. H. Bower (Ed.), *The psychology of learning and motivation*. Vol. 15. (pp. 201–236). New York, NY: Academic Press.
- Grosse Wiesmann, C., Schreiber, J., Singer, T., Steinbeis, N., & Freiderici, A. D. (2017). White matter maturation is associated with the emergence of theory of mind in early childhood. *Nature Communications*, 8(14692).
- Hazen, N. L., & Volk-Hudson, S. (1984). The effect of spatial context on young children's recall. *Child Development*, 55(5), 1835–1844.
- Holt, D. B. (1995). How consumers consume: A typology of consumption practices. *Journal of Consumer Research*, 22(1), 1–16.
- Howell, R. T., & Hill, G. (2009). The mediators of experiential purchases: Determining the impact of psychological needs satisfaction and social comparison. *The Journal of Positive Psychology*, 4(6), 511–522.
- Hughes, C., & Leekam, S. (2004). What are the links between theory of mind and social relations? Review, reflections, and new directions for studies of typical and atypical development. *Social Development*, 13(4), 590–619.
- John, D. R. (1999). Consumer socialization of children: A retrospective look at twenty-five years of research. *Journal of Consumer Research*, 26(3), 183–213.
- Kannass, K. N., Plumert, J. M., McDermott, J., Moore, B., & Durich, N. (2004). The role of the physical context in supporting young children's use of spatiotemporal organization in recall. *The British Journal of Developmental Psychology*, 22(1), 59–82.
- Kihlstrom, J. F., Beer, J. S., & Klein, S. B. (2003). Self and identity as memory. In M. R. Leary, & J. P. Tangney (Eds.), *The handbook of self and identity* (pp. 68–90). New York, NY: Guilford Press.
- Kumar, A., Killingsworth, M. A., & Gilovich, T. (2014). Waiting for merlot: Anticipatory consumption of experiential and material purchases. *Psychological Science*, 25(10), 1924–1931.
- Lewin, K. (1938). *A dynamic theory of personality*. New York: McGraw-Hill.
- Malle, B. F. (2005). Folk theory of mind: Conceptual foundations of human social cognition. In R. R. Hassin, J. S. Uleman, & J. A. Bargh (Eds.), *The new unconscious* (pp. 225–255). New York: Oxford University Press.
- McAlister, A., & Peterson, C. C. (2006). Mental playmates: Siblings, executive functioning, and theory of mind. *British Journal of Developmental Psychology*, 24(4), 733–751.
- Meinke, D. L., George, C. W., & Wilkinson, J. M. (1975). Concrete and abstract thinkers at three grade levels and their performance with complex concepts. *Journal of Educational Psychology*, 67(1), 154–158.
- Mitchell, T., Thompson, L., Peterson, E., & Cronk, R. (1997). Temporal adjustments in the evaluation of events: The "rosy view". *Journal of Experimental Social Psychology*, 33(4), 421–448.
- Nguyen, L., & Frye, D. (1999). Children's theory of mind: Understanding of desire, belief, and emotion with social referents. *Social Development*, 8(1), 70–92.
- Nicolao, L., Irwin, J. R., & Goodman, J. K. (2009). Happiness for sale: Do experiential purchases make consumers happier than material purchases? *Journal of Consumer Research*, 36(2), 188–198.
- Nimon, K., Lewis, M., Kane, R., & Haynes, R. M. (2008). An R package to compute commonality coefficients in the multiple regression case: An introduction to the package and a practical example. *Behavior Research Methods*, 40(2), 457–466.
- O'Sullivan, J. T., & Howe, M. L. (1998). A different view of metamemory with illustrations from children's beliefs about long-term retention. *European Journal of Psychology of Education*, 13(1), 9–28.
- Premack, D., & Woodruff, G. (1978). Does the chimpanzee have a theory of mind? *Behavioral and Brain Sciences*, 1(4), 515–526.
- Richins, M. L. (2013). When wanting is better than having: Materialism, transformation expectations, and product-evoked emotions in the purchase process. *Journal of Consumer Research*, 40(June), 1–18.
- Rosenzweig, E., & Gilovich, T. (2012). Buyer's remorse or missed opportunity? Differential regrets for material and experiential purchases. *Journal of Personality and Social Psychology*, 102(2), 215–223.
- Schneider, W., & Pressley, M. (1997). *Memory development between two and twenty*. Mahwah, NJ: Erlbaum.
- Storm, B. C., & Jobe, T. A. (2012). Retrieval-induced forgetting predicts failure to recall negative autobiographical memories. *Psychological Science*, 23(11), 1356–1363.
- Tully, S. M., & Sharma, E. (2017). Context-dependent drivers of discretionary debt decisions: Explaining willingness to borrow for experiential purchases. *Journal of Consumer Research*, 44(5), 960–973.
- Tulving, E. (1985). How many memory systems are there? *American Psychologist*, 40(4), 385–398.
- Van Boven, L. (2005). Experientialism, materialism, and the pursuit of happiness. *Review of General Psychology*, 9(2), 132–142.
- Van Boven, L., & Gilovich, T. (2003). To do or to have? That is the question. *Journal of Personality and Social Psychology*, 85(6), 1193–1202.
- Walker, J., Kumar, A., & Gilovich, T. (2016). Cultivating gratitude and giving through experiential consumption. *Emotion*, 16(8), 1126–1136.
- Weidman, A. C., & Dunn, E. W. (2016). The unsung benefits of material things: Material purchases provide more frequent momentary happiness than experiential purchases. *Social Psychological and Personality Science*, 7, 390–399.
- Wellman, H. M., Cross, D., & Watson, J. (2001). Meta-analysis of theory of mind development: The truth about false belief. *Child Development*, 72(3), 655–684.
- Zhang, J. W., Howell, R. T., Capriarello, P. A., & Guevarra, D. A. (2014). Damned if they do, damned if they don't: Material buyers are not happier from material or experiential consumption. *Journal of Research in Personality*, 50, 71–83.