Creativity and Aging: Positive Consequences of Diminished Inhibitory Control

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Diminished inhibitory control, which is typically a negative consequence of normal aging, facilitated performance on a creative task. Young and older adults, who were more vulnerable to distracting information in a reading task, generated more creative options on a subsequent recipe generation task.

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Creativity at Different Times in Life
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Paper #2: Why Some Children Move and Groove So Well: A Look at Creative Performance and Theory of Mind
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Paper #3: How Awareness of the End of Life Impacts Creativity
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SESSION OVERVIEW
From the zealously adopted innovative products to the widespread passion for do-it-yourself goods, today’s consumers not only value creative aspects of the goods they consume but also enjoy engaging in creative activities themselves (Dahl and Moreau 2007). To win the hearts of these consumers and thrive in a competitive global market, firms have to constantly innovate and develop creative products and services. Thus, understanding psychological processes underlying creative ingenuity is important for both consumer satisfaction and corporate success (e.g., Burroughs and Mick 2004; Moreau and Dahl 2005). The purpose of this proposed special session is to interest and attract more consumer researchers to this domain, by presenting a diverse set of recent research findings on people’s creativity at different times in life, and by fostering a discussion of potentially interesting questions regarding theoretical developments in this domain, thereby sparking future research.

The four papers in this proposal each discusses creativity in a different stage of life. In the first presentation, Carpenter and Yoon show that while aging has long been thought to negatively affect cognitive ability, it can facilitate creativity performance. This effect is driven by the elderly’s vulnerability to distracting information. Further, young individuals who are more vulnerable to distractions are also more creative. The second presentation by Chaplin and Norton focuses on children, 3-12 years in age, and shows that younger children are more creative than their somewhat older counterparts: Younger children (ages 3-6) are more likely to exhibit creative, carefree behaviors than older children (ages 7-12) because the development of children’s ‘Theory of Mind’ increases their sensitivity to criticism from others.

In the third presentation, Yang and Chattopadhyay show that awareness of the end of life inhibits diverse exploration of ideas and improves creativity, and that locus-of-control moderates this effect—while high internal locus-of-control individuals can be more creative problem solvers in many situations, their creative ability is inferior to those with moderate levels of locus-of-control under mortality salience. Finally, in the fourth presentation, Nunes, Drèze, Cillo, Prandelli, and Scopelliti examine, through a large scale empirical investigation, how the designs of fashion designers—who are at the prime of their creative careers—evolve over time. Refuting the notion that iconic fashion designers are independent creative visionaries, the researchers show that the designs by fashion designers themselves and their competitors in prior years significantly affect the designers’ creativity and designs in the current year. Each presenter will have 15 minutes to present their project, leaving 15 minutes for discussions between the presenters and audience.

This special session contributes substantively to the theme of the ACR 2012 conference—appreciating diversity. The session brings together creativity researchers from different parts of the world, who have explored the impact of time and age on creativity in different contexts involving participants from a diverse range of age, demographic, and cultural groups. The four presentations highlight a wide range of theoretical perspectives on creativity and yield implications for consumers, firms, and society. Through the session, we hope to bring consumer researchers’ attention to creativity research, initiate discussions on a wide set of factors that impact creativity, and spark future research on creativity in consumer contexts. Finally, this session would appeal to a diverse range of consumer researchers, such as those interested in creativity, fashion and design, aging, cognition, memory, motivation, developmental psychology, and mortality salience.

Creativity and Aging: Positive Consequences of Diminished Inhibitory Control

EXTENDED ABSTRACT

Consumers of all ages often make decisions about products and services in complex and busy consumption environments. In such environments, consumers have to ignore or inhibit a vast amount of distracting information in order to make more effective and satisfying choices. One theory of information processing suggests that as people age, they become more vulnerable to the effects of distracting information due to normal age-related declines in inhibitory control (Hasher, Zacks, and May 1999). While this has typically been discussed as a negative feature of normal cognitive aging, the current line of research seeks to investigate positive outcomes associated with vulnerability to distraction. Past research suggests that distracting information can prime older adults with concepts that improve performance on the Remotes Associates Task (RAT; Kim, Hasher, and Zacks 2007). Better performance on the RAT is thought to be associated with cognitive flexibility and convergent thinking. In addition, research on creativity suggests that when the goal is complex, such as a creative or artistic goal, divergent thinking is enhanced, in part, by an attention to distracting (and often seemingly irrelevant) information (Kasof 1997).

The present line of research seeks to merge the separate literatures on inhibitory processes and on creativity by investigating how greater disinhibition of seemingly distracting information can enhance performance on subsequent tasks requiring divergent thinking. We hypothesize that enhanced vulnerability to distracting information will lead to greater creativity in both young and older adults. We reason that a difficult inhibition task will cause features of the distracting information to remain activated and enhance performance on an unrelated creativity task. In two studies we test our hypothesis.
that difficulty in inhibiting distracting information leads to the generation of more original recipe ideas.

Study 1: One hundred and ninety-four undergraduates (mean age = 19; 93 females) at the University of Michigan were recruited to participate in a study on reading comprehension. Participants were randomly assigned into one of two distraction conditions, or a control condition. All participants read a mundane passage about a person going on a regular trip to the grocery store. Participants in the control condition read the passage in italicized font without any distracting information. Participants in the first distraction condition were asked to read the italicized passage with irrelevant food related words (e.g., avocado, chicken) periodically embedded in upright font. Their task was to “read all of the italicized words” in the passage. In the second distraction condition, participants read the same italicized passage with food related words periodically embedded in upright font, but the task was to “ignore all of the upright words.” These instructions were adapted from pre-existing distraction paradigms (Kim et al. 2007). After completing the reading task, participants answered a few short comprehension questions. They then completed a creativity task where they were given 5 minutes to generate and write down as many cooking recipes as possible.

Following a coding procedure developed by Cheong, Burks, and Lee (2008), the recipes were scored by two blind judges who were self-identified “cooking connoisseurs.” Each recipe was judged on 3 items --dish creativity, deliciousness, and potential popularity-- on a 5-point scale ranging from 1 (low) to 5 (high). These three items were then averaged together to create an “originality composite” score. Results indicated that young participants in the two distraction conditions generated recipes with significantly higher originality composite scores than those in the control condition (p = .031). Participants in the two distraction conditions also generated significantly more recipes in the allotted 5 minutes than those in the control condition (p < .001).

Study 2: Twenty-three community-dwelling older adults (mean age = 76; 12 females) were recruited to participate in a reading comprehension task. Older adults are a population with declining inhibitory control, which is generally viewed as having negative consequences for attention and memory. If, however, we find that vulnerability to distraction enhances performance on subsequent tasks requiring divergent thinking, this would provide further support for the idea that declines in inhibitory control may have benefits for tasks requiring creativity. The procedure in this study was identical to that described in Study 1. Results indicated that older adult participants in the two distraction conditions also generated more recipes with significantly higher originality composite scores than those in the control condition (p = .001).

Overall, the results of two studies provide initial support for our theory that reduced inhibitory control can have positive consequences for creativity on tasks that require divergent thinking. Importantly, these facilitative effects occur for both young and older adults. In contrast to the well-documented detrimental effects of declines in inhibitory control associated with normal cognitive aging, our findings suggest positive consequences for creativity. Additional research is underway to further decompose the relationship between inhibitory mechanisms and creative processing. This includes determining what relationship a vulnerability to distracting information has to both divergent and convergent forms of thinking. Better understanding the relationship between disinhibition and creativity is important because consumers of all ages are faced with complex decision environments that require inhibition of distracting information in order to make more satisfying consumption choices. Our results suggest one context in which greater vulnerability to distraction may actually be beneficial.

**Why Some Children Move and Groove So Well: A Look at Creative Performance and Theory of Mind**

**EXTENDED ABSTRACT**

Chaperoning a middle school dance -- with girls and boys in their early teens slouched against the bleachers, carefully monitoring their peers and refusing to dance despite the booming music -- inevitably leads adults to comment: “Why aren’t they dancing?” This refusal to dance is particularly notable because many of these same children, just a few years earlier, were prone to dance, sing, and move more generally perform constantly -- in school, at home, in the backseat of the car, and while watching television -- with huge smiles and obvious relish. Why do people lose this willingness to perform -- to sing and dance -- as they age? We suggest that it is the very development of children’s awareness of their peers might be judging them -- itself an offshoot of the generally positive development of an ability to take the perspective of others -- that robs them of the joy of getting out on the dance floor when the latest Lady Gaga track starts playing. We gave children the opportunity to behave in a creative, carefree manner -- asking them to perform impromptu singing and dancing -- and measuring their willingness to do so, as well as their ability to adopt the perspectives of those who might be watching (and judging) them.

The development of theory of mind (ToM) over the course of childhood is generally viewed as representing a positive development -- allowing people to understand social norms and to “fit in” to social groups (Gauvain 1998, Liddle and Nettle 2006; Walker 2005; Walker and Shore 2011). Typically, ToM begins to develop around age 4; by age 5 or 6, success at ToM tasks becomes common, with some further development throughout school-age years (Chandler, Sokol, and Hallett 2001; Perner and Wimmer 1985; Wellman, Cross, and Watson 2001; Wimmer and Perner 1983). We predicted that increases in ToM deprive older children of the joy that comes with creative behaviors -- like singing and dancing -- due to the heightened sensitivity to criticism that ToM engenders (Dunn 1995). We chose singing and dancing since these behaviors have been shown to have significant benefits for health and well-being (Boniha 2008; Brown et al. 2005; Clift et al. 2008; Bungay, Clift, and Skingley 2010; Verghese 2003); unfortunately, these are also behaviors that are subject to scrutiny by others, as evidenced by television shows like “American Idol.”

One hundred fifty-nine children (81 girls, 78 boys) aged 3 through 12 participated in the experiment, and completed two tasks: a creative performance task and a task assessing ToM. The tasks were counterbalanced; order did not influence our results. In the performance task, we presented four options in a random order: sing a song, perform a dance, circle specific shapes on a page, or fill a square with a predefined color. (The first two tasks are associated with creative expressions, while the latter two tasks involve little creativity). Participants selected two tasks to complete in front of the experimenter. We assessed ToM with three measures: “Sally and Anne” false belief task (Baron-Cohen, Leslie, and Frith 1985); “Cookie Box” misleading container test (Gopnik and Astington, 1988); “Duck and Lion” social test (Nguyen and Frye 1999). Following McAlister and Peterson (2006), we summed the responses to form a composite measure of ToM (range: 0 to 3). Based on previous research suggesting pervasive competency on ToM tasks by age 6 (Wellman et al. 2001), we divided children into two groups for analysis: younger children (ages 3-6) and older
children (ages 7-12). As expected, older children ($M = 2.59, SD = .76$) had a more developed ToM compared to younger children ($M = .87, SD = 1.17$), $t(157) = 11.24, p < .001$.

More than twice as many younger children chose the creative tasks (singing or dancing) than older children: 59.7% of younger children selected singing and 50% dancing, compared to just 25.8% and 21.5% of older children, $\chi^2(1) > 13.81, p < .001$. Similarly, younger children were less likely to choose the non-creative tasks (circling and coloring; 41.9% and 48.4%) than older children, who overwhelmingly preferred these tasks (70.1% and 82.5%), $\chi^2(1) > 12.42, p < .001$. Put another way, only 11.3% of young children passed up the chance to sing and dance, whereas 55.7% of older children avoided both of these creative behaviors.

ToM mediated these differences in creative behaviors: The effect of age on the total number of sing and dance was significantly reduced (from $\beta = -.48, p < .001$, to $\beta = -.03, p = .72$) when ToM was included in the equation, and ToM significantly predicted singing and dancing ($\beta = -.67, p < .001$), such that ToM fully mediated the impact of age on willingness to sing and dance, Sobel's $Z = 6.83, p < .01$. (This analysis also holds when treating age as a continuous variable, Sobel’s $Z = 6.36, p < .01$.)

These results suggest that the development of ToM comes with costs, by decreasing people’s willingness to engage in creative, carefree tasks that bring them joy due to the heightened concern with evaluation that ToM engenders. While some research has documented the link between ToM and negative behaviors such as antisocial deception (Repacholi, Slaughter, Pritchard, and Gibbs 2003), our results suggest that ToM can also increase the prevalence of positive behaviors. Our results are also relevant to understanding “savant syndrome” in people with autism, who lack ToM (Baron-Cohen, Leslie, and Frith 1985; Treffert 2009). Our results suggest that one reason for the extraordinary creative abilities of some autistic may be the absence of the performance anxiety experienced by children without autism.

How Awareness of the End of Life Impacts Creativity

EXTENDED ABSTRACT

From natural disasters (e.g., earthquakes, hurricanes) to terrorism and wars (e.g., September 11) to social unrest (e.g., riots, murders) to accidents (e.g., car/plane crashes, train derailments), we are constantly exposed to information that makes our own mortality salient. At times, we may even be quite close to such misfortunes (e.g., living in New Orleans during Hurricane Katrina, working in Japan during the Fukushima nuclear emergency). This research explores how awareness of death affects creative ability and what type of individuals are more sensitive to this effect.

Extant research shows that mortality salience, or awareness of one’s death, elicits existential anxiety and, to buffer against this paralyzing anxiety, people deploy terror management strategies to create a sense of meaning and order, seeking to transcend death (e.g., Solomon, Greenberg, and Pyszczynski 1991; Greenberg, Solomon, and Pyszczynski 1997). Because cultural values provide meaning and structure to one’s world and represent permanence beyond any individual’s demise, mortality salience intensifies people’s adherence to their cultural values and worldviews (e.g., Greenberg et al. 1990; Rosenblatt, Greenberg, Solomon, Pyszczynski, and Lyon 1989).

This effect has been shown to be unique to death (as opposed other aversive events) and occurs outside of consciousness (Greenberg, Pyszczynski, Solomon, Simon, and Breus 1994).

While numerous studies on terror management theory have focused on the impact of mortality salience on evaluations of self and others (see Burke, Martens, and Faucher 2010 for a review), the current understanding of how mortality salience impacts creativity is limited (Routledge, Arndt, Vess, and Sheldon 2008). Seeking to fill this gap in the literature, the current research proposes that mortality salience inhibits access to information outside of one’s conventional knowledge, as a means to protect the coherence and stability of one’s core cultural values and worldviews. This inhibition occurs because access to peripheral information that may conflict or cast doubt on one’s core values and worldviews, can make adherence to them more difficult, reducing the effectiveness of this terror-management strategy. Thus, mortality salience is likely to hamper assess to divergent information in memory, impairing creative ingenuity.

Further, given that death represents the ultimate form of loss of control for human beings—we cannot prevent our eventual demise nor exert any control over post-mortal events (Becker 1973)—mortality salience may impact people with different control beliefs differently. While individuals with high internal locus-of-control believe that event outcomes are primarily controlled by their own efforts and actions, those with moderate internal locus-of-control believe that they have control over only some events (Rotter 1966). The first group’s beliefs are irreconcilable with the notion of death, leading to the elicitation of stronger terror-management behaviors under mortality salience. This, in turn, impairs their creative ability more. Consequently, while individuals with high internal locus-of-control can be more creative problem solvers in many situations (e.g., Burroughs and Mick 2004), their creativity ability is likely to be inferior to those with moderate level of internal locus-of-control under mortality salience.

Our propositions were tested in three experimental studies. Study 1a examined whether mortality salience (MS) inhibits assess to divergent knowledge. Participants first responded to a locus-of-control scale (Rotter 1966). Following a widely used TMT paradigm (Burke, Martens, and Faucher 2010), participants were then asked to write down thoughts regarding either their own death (MS condition) or viewing TV programs (control condition). Next, they completed the Positive and Negative Affect Schedule (Watson, Clark, and Tellegen 1988), which captured participants’ affective states and served as a delay task (cf. Pyszczynski, Greenberg, and Solomon 1999). Thereafter, participants in both conditions were asked to write down all the place names they could think of with “A” as the first letter. Consistent with the hypothesis that mortality salience inhibits access to divergent information in memory, participants in the MS condition wrote down significantly fewer foreign place names (e.g., Algeria, Antarctica, Australia) than those in the control condition. Further, a significant interaction effect between the locus of control measure and mortality salience manipulation was found. Analysis of the interaction revealed that, in the MS condition, participants with high internal locus-of-control wrote down significantly fewer foreign place names than those with moderate internal locus-of-control; however, the opposite was true in the control condition.

The experimental procedure for Study 1b and 2 was similar to that of Study 1a. In Study 1b, a set of Remote Associate Test (RAT; Mednick 1962) questions was utilized to investigate the impact of MS on participants’ ability to connect disparate semantic concepts. In Study 2, participants were given a managerial decision making task—deciding what new business should go into a commercial property where a restaurant had just gone bankrupt (adapted from Goncalo and Staw 2006). Providing further support for our hypotheses, participants in the MS condition correctly answered fewer RAT questions (Study 1b) and were more likely to follow the precedence, i.e., using the space for a restaurant again (Study 2). Locus-of-control moderated the effect of MS on participants’ responses in both
studies. While those with high internal locus of control exhibited better performance in the control condition, they were outperformed by those with moderate locus of control in the MS condition. Finally, ruling out an affect-based account of the results we found in the three studies, including the PANAS scores in the analyses did not change the findings.

Overall, these results not only shed light on the impact of mortality salience on information accessibility and creative problem solving, but also illuminate the role of control beliefs in terror management theories. Further, our findings contradict lay intuitions: A survey of mid to senior level executives at a large logistics firm revealed that the majority (67%) would put high locus-of-control managers in charge of problem solving, in crisis scenarios (e.g., natural disasters or terrorist attack that resulted in a major loss of life). Our results, however, suggest that those with moderate locus-of-control may be more creative problem solvers in those dire scenarios.

How Fashion Designers Develop New Styles: Creative Epiphany Versus Market Feedback

EXTENDED ABSTRACT

The fashion world is characterized by change. Like other creative industries including music, theater, and publishing, the public appetite for something novel in fashion seems insatiable. Fashion thrives on change, and the success of the industry as a whole depends on its ability to introduce new styles. World renowned design houses such as Chanel, Prada, Gucci, and Balenciaga and their top designers Karl Lagerfeld, Miuccia Prada, Frida Giannini, and Nicolas Ghesquière are devoted to introducing distinctive, original styles each season. But how fashion designers derive their inspiration is often shrouded in mystery. Like musicians, actors, and authors, designers are prone to see themselves as visionaries and creativity as an epiphany, impervious to outside influence. For example, Karl Lagerfeld, creative director at the helm of Chanel since 1983, claims his best work is effortless, coming to him in his sleep.

Despite ongoing research in fashion within many disciplines, data driven research on style changes across time is conspicuously absent in the literature. To the best of our knowledge, there exist no systematic empirical investigations regarding how styles change over time. As such, no research examines whether and how innovation in fashion depends on influences outside of the firm, such as market feedback and competitors’ behavior. This research sets out to determine whether fashion designers are indeed immune to caprices of the market. Specifically, we investigate whether fashion designers attend to market feedback. In doing so, we empirically test if and how the relative success or failure of styles introduced in the past affects new styles that are subsequently introduced. If designers are immune to criticism, we should observe no relationship. If, however, designers are shrewd marketers attuned to what critics say, the styles they introduce each season should be more similar to those styles that were reviewed more positively in the past and less similar to less positively received styles. Thus, we would expect to observe a systematic relationship between what they do and what they have done, as well as what their competitors, have done.

Our data collection occurred in multiple stages. We obtained a listing of all brands that were included in the catwalk calendars of Milan and Paris from 1999-2007 (fall/winter and spring/summer). Only those companies that put on runway shows with their seasonal collections during Fashion Week for at least five years were included in our data set. This resulted in 38 companies, with 22 from Milan and 16 from Paris. To develop a metric to gauge the extent to which each designer’s style changed from year to year, we compared prototypical pieces that were offered commercially following each show. To this end, we collected every ad published in Vogue Italia, Vogue France, Elle Italia, and MarieClaire France for all of the design houses each year. We used these ads to assess the change in style for a specific designer or design team. We focused on 11 primary types of garments (e.g., dresses, pants, etc.). Judges coded each garment on some subset of 13 style elements that were appropriate for the particular type of apparel. For example, tops were evaluated on sleeve length while pants were not. Six elements were evaluated using continuous measures (e.g., sleeve length, neckline), while seven elements were comprised of multiple discrete measures (e.g., color, fabric). Our data therefore included information on styles introduced by 38 design houses across nine years for two seasons derived from 5,343 advertisements. Taken together, this created what we refer to as the style genome for each of the 38 designers for each of the 18 seasons in our sample.

Our data and our results suggest that fashion designer, as commercial artists, are not only sensitive to their own past successes and failures when deciding what new designs to introduce, but shows they also consider competitors’ past work and how those styles have fared in the marketplace. Ours is the first empirical evidence of market feedback impacting new product introductions in an industry based on aesthetic innovation. The paradox of fashion is the conflict between looking distinctive while giving the impression of a certain degree of uniformity. Understanding how aesthetic innovation occurs, and what drives its acceptance or rejection is an important area that should garner a lot of attention in the future.
REFERENCES


