Conformity Effect in Creative Product Evaluation

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Abstract

Despite extensive research on conformity effects, whether such effects exist in the evaluation of creative products remains to be investigated. The present experiment employed two categories of creative products with differing levels of originality— "innovative products" and "reformative products" —as stimuli, and utilized an "initial evaluation-conformity induction-delayed re-evaluation" procedure to examine whether conformity effects emerge in the perception and evaluation of two fundamental dimensions of creative products: novelty and usefulness. The results revealed conformity effects on both dimensions for both product types; however, "innovative products" exhibited greater conformity in usefulness evaluations compared to "reformative products". The experiment further compared participants' degree of certainty when making evaluations across the two dimensions, finding that participants experienced greater uncertainty when evaluating the usefulness of "innovative products" relative to reformative products. This suggests that the heightened uncertainty associated with making usefulness judgments for "innovative products" may underlie the increased conformity.

Full Text

Conformity Effects in the Evaluation of Creative Products

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Abstract

Although extensive research has been conducted on conformity effects, whether conformity influences the evaluation of creative products remains to be explored.

This experiment employed two types of creative products with differing degrees of originality— "innovative products" and "renovative products" —as materials, using an "initial evaluation-conformity induction-delayed re-evaluation" procedure to investigate whether conformity effects exist in people' s perception and evaluation of creative products along two fundamental dimensions: novelty and practicability. The results revealed conformity effects in both dimensions for both product types; however, innovative products showed greater conformity than renovative products in practicability evaluations. The experiment further compared participants' certainty levels when making these two types of evaluations, finding that participants experienced stronger uncertainty when evaluating the practicability of innovative products compared to renovative products. This suggests that the increased conformity observed for innovative products may be driven by greater uncertainty associated with practicability judgments.

Keywords: innovative products; renovative products; practicability; novelty; conformity effect; uncertainty

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In 1951, psychologist Asch conducted a classic conformity experiment using a line judgment task (Asch, 1951). Subsequent researchers have extensively studied conformity behavior, defining conformity as a phenomenon where an individual' s beliefs or behaviors shift toward alignment with the majority due to direct or implicit group pressure or guidance (Cialdini & Goldstein, 2004). Sometimes, to understand various aspects of society, individuals use others as information sources, resulting in informational conformity (Deutsch & Gerard, 1955). For instance, researchers found that when an experimenter stood on a sidewalk looking up at the top of a tall building, other pedestrians would follow suit within minutes (Milgram, Bickman, & Berkowitz, 1969). In this experiment, the researcher provided information suggesting something was happening atop the building, leading the public to believe they should also look up. At other times, individuals seek social approval, form friendly alliances, and incorporate social norms into their decision-making, resulting in normative conformity (Deutsch & Gerard, 1955). Studies have shown that compared to no-pressure conditions, peer pressure leads to greater conformity behavior and increased fear of failure (Janes & Olson, 2000). Conformity phenomena are ubiquitous across various research domains. For example, researchers have used mental rotation paradigms to examine conformity effects in perceptual processes, simultaneously presenting two three-dimensional figures and asking participants to judge whether they were identical within a time limit, finding that presenting others' answers influenced individual judgments (Berns et al., 2005). Research on behavioral decision-making has found that consumers are more likely to queue for products where others are waiting in line (Agostinelli, 1989). Some restaurants, for instance, deliberately arrange for customers to wait even when many seats are available, as pedestrians seeing the queue tend to assume the restaurant must be worthwhile.

Despite the widespread existence of conformity phenomena, research on confor-

mity regarding innovative ideas or creative products remains scarce. Although innovation in concepts, behaviors, and technologies constitutes a fundamental method for human civilization' s progress, not all innovations are automatically integrated into the cultural system. In fact, many valuable innovations have been lost to history due to insufficient attention and acceptance, with only a fortunate few surviving. The fate of an innovation in human society—whether it can diffuse and spread among populations—is significantly influenced by the power of conformity. From innovative religious beliefs to novel fashion trends, their propagation and diffusion largely depend on people' s conformity psychology. For example, in promoting new government policies, authorities often leverage social conformity to facilitate attitude change (Neighbors, Larimer, & Lewis, 2004). Therefore, a deep understanding of the conformity processes and mechanisms that promote innovative ideas can undoubtedly help us predict when and how attitude or behavior change occurs, enabling effective innovation promotion, which holds significant scientific importance. This study examines creative products to explore conformity effects in their evaluation, which can not only expand and enrich conformity research but also deepen our understanding of innovation promotion and diffusion processes.

Research has found that people easily conform when evaluating artistic works. Welborn et al. (2016) asked participants to evaluate 259 artworks spanning various domains twice and found that even without the physical presence of peers, participants changed their ratings during the second evaluation to align with group ratings (Welborn et al., 2016). Other researchers using abstract paintings as evaluation materials found that participants' preference ratings were influenced by group popularity (Tafarodi, Kang, & Milne, 2002). Artistic creativity refers to the ability to generate novel and aesthetically valuable ideas or products, with artworks being the products resulting from artistic creative activities (such as music, visual arts, literature, dance) (Sternberg & Lubart, 1996). People emphasize the aesthetic value of artworks and the emotional content they convey to viewers (Zeki, 2001). Creative products, by contrast, are novel and practical products generated using scientific knowledge to achieve specific purposes and tasks. Creative products emphasize solving concrete problems effectively in novel ways and serving practical functions in daily life (Hu, Shi, Han, Wang, & Adey, 2010). While related to artistic works, creative product design cannot represent or be equated with typical creative products in everyday life. Compared to artistic works, creative products are more closely connected to real life, better reflect actual creativity, and represent typical creative products in daily living (Tanggaard, 2015). Although creative and novel products attract consumers more easily and succeed in competitive markets, their introduction does not guarantee consumer acceptance. Beyond the products themselves, inappropriate marketing strategies constitute an important factor in product innovation failure. Studying conformity effects in the evaluation of such products holds significant practical implications for creative product marketing.

Based on originality, creative products can be divided into renovative products and innovative products (Mugge & Dahl, 2013; Mukherjee & Hoyer, 2001).

Renovative products are new products that appropriately improve structure and function based on existing products, maintaining some similarity with original products (for example, a "six-blade watermelon knife" is a renovative product that improves upon a regular kitchen knife, as shown in [Figure 1: see original paper]). Innovative products do not depend on any existing products and satisfy previously unmet human needs (such as a one-handed book holder, as shown in [Figure 1: see original paper]) (Madjar, Greenberg, & Chen, 2011; Tang & Naumann, 2016). Compared to conventional products, creative products bring new perspectives and usage experiences while simultaneously generating greater uncertainty (Mueller, Wakslak, & Krishnan, 2014), with innovative products producing even greater uncertainty than renovative products. When facing uncertainty, individuals are more likely to change their views to align with group opinions, and the greater the uncertainty, the more likely they are to conform (Escalas & Bettman, 2005). Therefore, conformity effects should exist in creative product evaluation processes, and innovative products may be more susceptible to conformity than renovative products. Investigating conformity effects in creative product evaluation and comparing conformity between innovative and renovative products thus holds important theoretical significance for conformity research itself.

Although novelty and practicability are widely recognized as the two fundamental characteristics of creativity, most researchers have treated creativity as a unitary construct (Krasilo, 2005; Valgeirsdottir, Onarheim, & Gabrielsen, 2015), failing to study it from the perspective of separating its constituent elements of novelty and practicability—a separation essential for deeply understanding creativity' s nature. Practicability and novelty are the two most important factors in evaluating creativity (Diedrich, Benedek, Jauk, & Neubauer, 2015), and novel yet practical connections relevant to the task are key to insight problem-solving (Luo, Niki, & Phillips, 2004). Similarly, people' s evaluations of creative products primarily depend on these two factors. Therefore, this study plans to separately examine conformity effects in practicability and novelty evaluations. Previous studies have mostly explored characteristics of creativity and creative products themselves (Besemer, 2000; Kristensson & Norlander, 2010); however, innovation and renovation represent two forms of creative realization: radical creation (innovation) and incremental creation (renovation) (Mugge & Dahl, 2013). Integrating these two aspects, we used renovative products (such as six-blade watermelon knives) and innovative products (such as one-handed book holders) as experimental materials, adopting an "initial evaluation-conformity induction-delayed re-evaluation" procedure (Campbell-Meiklejohn et al., 2012; Klucharev, Hytonen, Rijpkema, Smidts, & Fernandez, 2009) to ask participants to evaluate product practicability and novelty twice. Specifically, participants first evaluated creative products, after which they were shown group ratings from "200 university students." These group ratings were adjusted based on participants' own ratings, being set higher, lower, or comparable to participants' ratings to induce perceived group pressure and conformity. Thirty minutes later, participants re-evaluated the creative products. We hypothesized that:

(1) both innovative and renovative products would show conformity effects in novelty and practicability evaluations; and (2) innovative products would show greater conformity than renovative products in both practicability and novelty evaluations.

2.1 Purpose

Using the "initial evaluation-conformity induction-delayed re-evaluation" paradigm, this experiment asked participants to evaluate the practicability of renovative and innovative products twice, separated by a time interval, to analyze conformity effects in creative product practicability evaluation and compare conformity levels between renovative and innovative products.

2.2.1 Participants

Thirty-seven university students were recruited from Beijing (19 male, 18 female), with a mean age of 21.41 years (SD = 2.49). All participants were right-handed, physically healthy, and had normal or corrected-to-normal vision. Participants received monetary compensation after completing the experiment.

2.2.2 Collection, Evaluation, and Selection of Experimental Materials

During material preparation, we collected 128 creative products through various channels. Art students drew these products as uniform, standardized images that clearly displayed product structure and function. To facilitate understanding, each product was accompanied by a 12- or 13-character description including product name, material, and usage (e.g., "six-blade watermelon knife that cuts six pieces at once"). These images and descriptions were combined on a black background using PowerPoint to create BMP images with 960×720 resolution, which were then compressed to 600×450 resolution using iSee image processing software.

Conventional products are commonly seen and used in daily life (e.g., stainless steel kitchen knives). Innovative products represent the highest level of originality, created to satisfy previously unmet human needs (e.g., a one-handed book holder is a completely new product without any prototype). Renovative products have lower originality than innovative products; they maintain the primary functions of existing products while making appropriate modifications to add auxiliary features (e.g., a "six-blade watermelon knife" is a renovative product that improves upon a regular kitchen knife). Based on these distinctions, five experts conducted group discussions to rate the 128 collected creative products on a 0-1 scale for whether they had a prototype (0 = no prototype, 1 = has prototype). The experts unanimously identified 59 products as having no prototype (innovative products) and 69 as having a prototype (renovative products). To further verify material reliability, we randomly recruited 20 participants to evaluate the products across six dimensions (novelty, practicability, complexity, comprehensibility, presence of prototype, and familiarity). The

"presence of prototype" and "familiarity" dimensions used 0–1 scoring (0 = no prototype or unfamiliar, 1 = has prototype or familiar), while other dimensions used 8-point scales with higher scores indicating greater levels of the dimension. Before evaluation, participants were explained the meaning of each dimension, with particular emphasis on the concept of prototype—a conventional product upon which some creative products are based (e.g., the prototype of a "six-blade watermelon knife that cuts six pieces at once" is a regular kitchen knife). Based on these 20 participants' ratings, we finally selected 60 creative products meeting experimental requirements (30 renovative products, 30 innovative products). The selected renovative and innovative products differed significantly only on the "presence of prototype" dimension, a difference inherent to the products' definitions. No significant differences existed between the two product types on the other five dimensions (see).

TABLE:1
Mean scores (±SD) for the two product types across dimensions and t-test results

Product Type	Comprehension Time (ms)	Novelty Rating	Practicability Rating	Complexity Rating	Comprehensibility Rating	Presence of Prototype	Familiarity
Renovative	5120 (±1088)	5.91 (±0.6)	5.80 (±0.6)	4.46 (±1.1)	6.06 (±0.4)	0.45 (±0.2)	0.17 (±0.1)
Innovative	5321 (±1000)	6.09 (±0.3)	5.75 (±0.6)	4.54 (±0.8)	6.06 (±0.5)	0.56 (±0.1)	0.16 (±0.1)
t-value	-2.74**						

Note: ** indicates $p < 0.01$.

The experiment employed a 2 (product type: innovative vs. renovative) × 3 (conformity manipulation: negative vs. no-conflict vs. positive) within-subjects design. In the first experimental phase, participants first rated product practicability on an 8-point scale (higher scores indicated greater practicability), after which the "200 university students' " group rating and the participant' s own rating were simultaneously presented. The group rating was adjusted based on the participant' s rating in three ways: (1) ± (0, 0.1, 0.2) as the no-conflict condition (control group, minimal adjustment); (2) − (1.0–2.0) as the negative manipulation condition; and (3) + (1.5–2.5) as the positive manipulation condition (to balance the magnitude of addition and subtraction). All product images were randomly presented using E-prime. After completing the first phase, participants were informed there would be a post-test (unknown to them beforehand). Thirty minutes later, the second-phase experiment began, in which participants were asked to re-evaluate the same product images. The experimental procedure is detailed in [Figure 2: see original paper].

2.3.1 Analysis of Conformity Effects in Practicability Evaluations of Creative Products

To avoid the influence of extreme values, trials where participants'second ratings were 5 points or more higher than their first ratings under negative conditions were removed before data analysis, totaling 6 trials (0.27% removal rate). Results showed that participants' second ratings aligned with our manipulation direction in terms of mean scores (see [Figure 3: see original paper]A). Specifically, under negative manipulation, participants' second practicability ratings were significantly lower than their first ratings ($t(36) = 7.25$, $p < 0.001$, $d = 0.77$). In the no-conflict condition, the difference between the two ratings was not significant ($t(36) = 1.27$, $p = 0.21$). Under positive manipulation, participants' second ratings were significantly higher than their first ratings ($t(36) = -2.55$, $p = 0.015$, $d = 0.39$). A one-way ANOVA on the change scores (second rating − first rating) across the three levels (no-conflict, positive, negative) revealed significant differences ($F(2,108) = 42.31$, $p < 0.001$, $p^2 = 0.54$). Post-hoc tests showed that the change magnitude in the negative condition was significantly greater than in both the positive condition ($p < 0.001$) and no-conflict condition ($p < 0.001$), with the positive condition also significantly greater than the no-conflict condition ($p = 0.002$). These results demonstrate conformity effects in participants' practicability evaluations of creative products.

2.3.2 Analysis of the Interaction Between Product Type and Conformity Manipulation in Practicability Evaluations

A 2 × 3 repeated-measures ANOVA on participants' rating change scores (second rating − first rating) revealed a significant interaction ($F(2,72) = 5.30$, $p = 0.007$, $p^2 = 0.13$) (see [Figure 3: see original paper]B). Simple effects analysis showed that when group ratings were lower than participants' ratings (negative condition), the conformity change magnitude for innovative products was significantly greater than for renovative products ($p = 0.012$, $p^2 = 0.16$). When group ratings were comparable to participants'ratings (no-conflict condition), no significant difference existed between innovative and renovative products ($p = 0.780$). When group ratings were higher than participants' ratings (positive condition), the change magnitude for innovative products was marginally greater than for renovative products ($p = 0.066$, $p^2 = 0.09$). Thus, whether under positive or negative manipulation, innovative products showed stronger conformity in practicability evaluations than renovative products during the second rating.

FIGURE:3
Conformity effects in practicability evaluations of creative products

Panel A shows differences between participants' first and second practicability ratings. Panel B shows the interaction between conformity manipulation and product type in practicability evaluations. Note: * indicates $p < 0.05$, ** indicates $p < 0.01$. Error bars represent standard errors.

2.3.3 Comparative Analysis of Range Effects and Conformity Effects

In the first evaluation procedure, the group rating from "200 university students" was set based on participants' first rating (e.g., the positive group added 1.5–2.5 points to participants' ratings; the negative group subtracted 1.0–2.0 points). Consequently, the group rating range was larger than participants' first rating range. During the second evaluation, participants might reference the group rating, increasing their own rating range and thus the variability of second ratings (Klucharev et al., 2009). This range effect might confound our observed conformity effects. To rule out range effects, we defined extreme ratings as 1, 2, 7, and 8, using the percentage of these extreme ratings out of total ratings as an index of extreme responding. Comparing the variability (standard deviation) between the two evaluations revealed that variability in second ratings slightly decreased ($t(36) = -1.927$, $p = 0.062$) (see [Figure 4: see original paper]A), contradicting the range effect hypothesis.

If range effects were present, participants would tend to give low or high (more extreme) ratings during the first evaluation. The randomly programmed average rating would then always be higher or lower than participants' ratings or comparable to them, causing participants to reduce extreme values in their second evaluation and thus decreasing variability. Conversely, when first ratings were more extreme, second ratings would be relatively concentrated, increasing variability. [Figure 4: see original paper]A clearly shows that compared to the first evaluation, when the proportion of extreme values was low (left side of the x-axis), participants' second evaluation variability was lower; when the proportion of extreme values was high (right side of the x-axis), second evaluation variability was greater. This pattern contradicts range effects. In summary, changes between the two practicability ratings were unrelated to range effects, confirming that participants were indeed influenced by group practicability ratings and conformed.

The results of Experiment 1a demonstrate that participants conformed in practicability evaluations of creative products, being influenced by group evaluations, and that innovative products conformed more easily than renovative products. This confirms Hypothesis 1 and the portion of Hypothesis 2 concerning conformity effects in practicability evaluation.

FIGURE:4
Distribution of variability (standard deviation) in participants' two evaluations

Panel A shows variability in the two practicability evaluations from Experiment 1a; Panel B shows variability in the two novelty evaluations from Experiment 1b.

3.1 Purpose

Practicability and novelty are the two fundamental characteristics of creative products. In Experiment 1a, we found conformity effects in practicability eval-

uations of creative products, with innovative products conforming more than renovative products. Does the same conformity pattern emerge in novelty evaluations? This experiment further analyzes conformity effects in novelty evaluations for both product types.

3.2.1 Participants

Thirty participants (12 male, 18 female) who had not previously participated in creative product evaluation experiments were recruited from Beijing universities, with a mean age of 20.47 years (SD = 1.94). All participants had normal or corrected-to-normal vision and were right-handed.

3.2.2 Procedure

Experiment 1b followed the same procedure as Experiment 1a, but asked participants to evaluate the novelty of creative products. Using the same materials from Experiment 1 (30 renovative products and 30 innovative products), each participant evaluated the creative products twice. During the first evaluation, participants rated product novelty, after which the group rating from "200 university students" and their own rating were simultaneously presented. The group rating could be similar to, higher than, or lower than participants' ratings. When participants realized their evaluation differed from the group rating, they were likely influenced by the group rating and changed their own evaluation to align with the group. Thirty minutes later, participants were unexpectedly asked to re-evaluate product novelty; during this second evaluation, no group rating was presented.

3.3.1 Conformity Effects in Novelty Evaluations of Creative Products

Before data analysis, to avoid extreme value influences, trials where participants' second ratings were 5 points or more higher (or lower) than their first ratings under negative (or positive) manipulation were removed, totaling 7 trials (0.39% removal rate). Under negative manipulation, participants'second novelty ratings were significantly lower than their first ratings ($t(29) = 3.21$, $p = 0.003$, $d = 0.51$). Under positive manipulation, second novelty ratings were significantly higher than first ratings ($t(29) = 2.50$, $p = 0.018$, $d = 0.42$). In the no-conflict condition, no significant difference existed between the two novelty ratings ($t(29) = 0.74$, $p = 0.464$). These results indicate that participants'second novelty ratings aligned with group ratings (see [Figure 5: see original paper]A). A one-way ANOVA on rating change scores (second novelty rating − first novelty rating) across the three manipulation types (negative, no-conflict, positive) revealed significant differences ($F(2,58) = 19.43$, $p < 0.001$, $p^2 = 0.40$). Post-hoc tests showed that the conformity change magnitude in the negative condition was significantly greater than in both the positive condition ($p < 0.001$) and no-conflict condition ($p = 0.001$), with the positive condition also significantly greater than the no-conflict condition ($p = 0.031$). These findings demonstrate that participants

conformed in novelty evaluations of creative products, being influenced by group novelty ratings even when group members were not physically present.

FIGURE:5
Conformity effects in novelty evaluations of creative products

Panel A shows differences between participants' first and second novelty ratings. Panel B shows the interaction between conformity manipulation and product type in novelty evaluations. Note: * indicates $p < 0.05$, ** indicates $p < 0.01$. Error bars represent standard errors.

3.3.2 Analysis of the Interaction Between Product Type and Conformity Manipulation in Novelty Evaluations

A 2×3 repeated-measures ANOVA on participants' novelty rating change scores revealed no significant interaction between product type and conformity manipulation ($F(2,58) = 0.58$, $p = 0.566$) (see [Figure 5: see original paper]B). This indicates that innovative and renovative products did not differ significantly in conformity levels during novelty evaluation.

3.3.3 Comparative Analysis of Range Effects and Conformity Effects

As in Experiment 1a, we compared range effects and conformity effects in Experiment 1b. A paired-samples t-test on variability between the two novelty evaluations revealed no significant difference in second rating variability ($t(29) = 1.135$, $p = 0.266$) (see [Figure 4: see original paper]B), contradicting range effect predictions.

[Figure 4: see original paper]B shows that compared to the first novelty evaluation, when the proportion of extreme values was low (left side of the x-axis), variability in participants' second novelty evaluation was essentially the same; when the proportion of extreme values was high (right side of the x-axis), variability in the second novelty evaluation was greater. This pattern contradicts range effects. Therefore, changes between the two novelty ratings were unrelated to range effects, confirming that participants were indeed influenced by group novelty ratings and conformed.

Experiment 1b found conformity effects in novelty evaluations of creative products, with renovative and innovative products showing equivalent conformity levels. This confirms Hypothesis 1—that novelty evaluation of creative products shows conformity effects—but contradicts Hypothesis 2, which predicted that innovative products would conform more than renovative products in novelty evaluation. Although Experiments 1a and 1b controlled for the novelty and practicability characteristics of the two product types, ensuring they differed only on "presence of prototype" with no significant differences on other dimensions, why did the two product types show significant differences in conformity levels during practicability evaluation but not during novelty evaluation?

We hypothesize that compared to novelty evaluation, participants experienced greater uncertainty when evaluating innovative products versus renovative products only during practicability evaluation, thereby promoting increased conformity in innovative product practicability evaluation. Due to participants' lack of knowledge about creative products and absence of referential experience (Gourville, 2006), they doubted their own evaluation abilities and lacked confidence in their rating accuracy, generating uncertainty during creative product evaluation. This uncertainty inevitably involves both fundamental characteristics of creative products: novelty and practicability. Compared to conventional products, people are unfamiliar with creative products and lack sufficient product experience and information, creating uncertainty about whether they can effectively use the product to solve relevant problems and how valuable the product would be to them—thus generating uncertainty in practicability evaluation. When evaluating product novelty, participants typically rely on existing experience to infer whether the product is common in the population and how it differs from conventional products, also lacking confidence in their novelty ratings. Therefore, participants experienced uncertainty in both novelty and practicability evaluations.

Hoeffler (2003) found that people experienced greater uncertainty when evaluating innovative products than renovative products (Hoeffler, 2003). Uncertainty is an important factor influencing conformity behavior, often increasing individuals' conformity, with greater uncertainty leading to greater conformity (Escalas & Bettman, 2005). Based on this, innovative products should conform more than renovative products in both novelty and practicability evaluations. However, the two product types only differed in conformity levels during practicability evaluation. This may be because the uncertainty difference between innovative and renovative products only emerged during practicability evaluation, while uncertainty levels were equivalent during novelty evaluation. To test this hypothesis and explain the differences in conformity levels between the two product types across novelty and practicability evaluations in Experiment 1, we designed Experiment 2. We hypothesized that: (3a) participants would experience greater uncertainty when evaluating the practicability of innovative products compared to renovative products; and (3b) the two product types would experience equivalent uncertainty during novelty evaluation.

4.1 Purpose

To compare differences in uncertainty levels faced by participants when evaluating the practicability (or novelty) of innovative versus renovative products.

4.2.1 Participants

Twenty-two university students or graduate students were recruited (9 male, 13 female) with a mean age of 23.15 years (SD = 2.16). All participants had normal or corrected-to-normal vision and were right-handed. Participants received monetary compensation after completing the experiment.

4.2.2 Procedure

Ten creative products (5 renovative, 5 innovative) were randomly selected from the 60 products. These renovative and innovative products differed significantly only on the "presence of prototype" dimension ($t(8) = 3.39$, $p = 0.000$, $d = 0.76$), with no significant differences in novelty ($t(8) = 0.45$, $p = 0.66$) or practicability ($t(8) = 0.67$, $p = 0.52$). Product images were presented to participants in a pseudo-random order. Participants first viewed each product image, then rated its practicability (or novelty) on a 7-point scale (higher scores indicated greater practicability or novelty; lower scores indicated less practicability or novelty). Subsequently, participants rated their certainty about their practicability (or novelty) evaluation on a 7-point scale (higher scores indicated greater certainty; lower scores indicated greater uncertainty). Before the experiment, participants received detailed explanations of "uncertainty," specifically: "How confident are you in the practicability or novelty rating you just gave? Or, based on your knowledge of the product, how accurate do you think your practicability or novelty rating is?" The entire experiment was presented via Wenjuanxing (a Chinese online survey platform), and all participants completed product evaluations on computers while the experimenter monitored completion via voice communication.

4.3 Results

A paired-samples t-test on certainty ratings for practicability evaluation between innovative and renovative products revealed significant differences ($t(21) = 3.37$, $p = 0.003$, $d = 0.78$). A paired-samples t-test on certainty ratings for novelty evaluation between the two product types revealed no significant difference ($t(21) = 1.574$, $p = 0.130$) (see [Figure 6: see original paper]).

FIGURE:6
Certainty ratings for practicability and novelty evaluations of innovative and renovative products

Note: ** indicates $p < 0.01$. Error bars represent standard errors.

Experiment 2 found that innovative products received lower certainty ratings in practicability evaluation than renovative products, indicating that participants experienced greater uncertainty when evaluating the practicability of innovative products. No difference in certainty ratings emerged between innovative and renovative products in novelty evaluation. These results confirm Hypothesis 3, suggesting that uncertainty differences between innovative and renovative product evaluations primarily stem from practicability evaluation.

Experiment 1 used an "initial evaluation-conformity induction-delayed re-evaluation" procedure to study conformity effects in creative product evaluation, finding conformity effects in both novelty and practicability evaluations. In practicability evaluation, innovative products conformed more than renovative products, whereas in novelty evaluation, the two product types

showed equivalent conformity levels. Experiment 2 compared certainty levels in practicability and novelty evaluations of the two product types, finding results similar to Experiment 1: participants faced greater uncertainty when evaluating the practicability of innovative products than renovative products, but equivalent uncertainty levels when evaluating novelty. This suggests that the greater uncertainty experienced when evaluating innovative products increased conformity in their practicability evaluation.

Individuals easily conform during creative product evaluation due to characteristics of creative products themselves and group pressure factors. Researchers argue that when experts in a field unanimously agree a product is creative, it is considered creative, making social conformity unavoidable in creativity recognition (Amabile, 1982; Haller, Courvoisier, & Cropley, 2011). Creative products result from the inspiration and ideas of a minority; most individuals do not understand their principles and characteristics, lacking usable information during evaluation. Therefore, uncertainty naturally arises during product evaluation, and when discovering their evaluations differ from the group, participants easily conclude that group ratings are more reliable, making conformity more likely. Asch (1951) found that even when problem situations were certain, most individuals still followed group opinions and chose incorrect answers under group pressure (Asch, 1951). Klucharev et al. (2009) studied the neural mechanisms of conformity using face rating tasks, finding that when individuals perceived conflicts between their own and group ratings, the rostral cingulate cortex showed significant activation while ventral striatum activation significantly decreased. The rostral cingulate is associated with cognitive conflict, while the ventral striatum is involved in reward detection; both are related to reinforcement learning (Klucharev et al., 2009). This suggests that changing one' s view to conform yields intrinsic rewards when individuals perceive disagreement with others. In our study, peer group ratings were presented after participants' first ratings, making it easy for participants to conform to alleviate group pressure when their ratings conflicted with group ratings.

Unlike novelty evaluation, innovative products generated greater uncertainty than renovative products in practicability evaluation, making individuals more likely to conform when evaluating innovative product practicability. Here, uncertainty refers to the ambiguity arising from individuals' unfamiliarity with creative products and limited knowledge, leading to insufficient confidence in rating accuracy (Mueller, Melwani, & Goncalo, 2012). Innovative products are completely new and dissimilar to any existing products, so using them may require changing existing behavioral habits (Herzenstein & Hoeffler, 2016). Thus, using an innovative product involves employing a completely new product in a new behavioral way, a process inherently filled with greater uncertainty. Renovative products, however, are based on existing products with modifications, allowing individuals to transfer usage experience from prototype products (Hoeffler, 2002). Therefore, using renovative products involves using a new product in an old way. From this perspective, participants indeed faced greater uncertainty when evaluating innovative product practicability than renovative product prac-

ticability. Research has found that evaluating innovative product practicability primarily activates the conceptual pathway, meaning individuals'representations of innovative products depend mainly on semantic and knowledge-based information about the product (F. R. Huang, Chiu, & Luo, 2016). Thus, individuals could only use relevant knowledge to infer innovative product usage, making group practicability ratings likely to be incorporated as knowledge-based information about product usefulness for reference. In contrast, renovative products primarily activate the motor pathway, meaning processing of renovative products depends mainly on motor operation information such as product usage skills (F. R. Huang et al., 2016). Therefore, when evaluating renovative products, participants focused more on product usage processes and could generate familiarity based on prototype products, making them more certain about renovative product practicability and less influenced by group ratings. In novelty evaluation, however, both renovative and innovative products are novel and uncommon in daily life compared to conventional products (Gilson & Madjar, 2011). When the two product types did not differ in inherent novelty levels, participants experienced equivalent certainty levels, resulting in no difference in conformity levels between innovative and renovative products in novelty evaluation.

We found in Experiment 1 that conformity change magnitude was greater under negative manipulation (group rating lower than participants' rating) than positive manipulation (group rating higher than participants' rating), meaning consumers were more likely to change their ratings when learning the group gave poor evaluations, tending to give lower ratings themselves. This indicates a negativity bias in conformity patterns in creative product evaluation. Negativity bias is widespread in humans and animals, with people processing negative information more readily, manifesting in attention, memory, emotion, and other psychological processes (Rozin & Royzman, 2001). For example, individuals are more sensitive to negative emotional pictures than neutral or positive ones, with stronger emotional experiences (Y. X. Huang & Luo, 2006). Research has found that individuals tend to judge high-arousal negative pictures as familiar regardless of prior exposure, and show better memory for negative than neutral or positive pictures (Kaestner & Polich, 2011). Visual search tasks have found that threat faces are identified more easily, suggesting negativity bias helps individuals detect danger and avoid it promptly (Feldmann-Wüstefeld, Schmidt-Daffy, & Schubö, 2011). Negative information has greater arousal and survival significance than neutral or positive stimuli (Franken, Muris, Nijs, & Strien, 2008). Therefore, under negative conformity manipulation, individuals may perceive greater group pressure and are more likely to change their ratings to align with the group to relieve this pressure.

Our research found that compared to renovative products, consumers experienced greater uncertainty when evaluating innovative product practicability, which substantially influenced their behaviors and views, making them more likely to believe group ratings and conform. For example, Hitler proposed the living space theory, arguing that superior nations should enjoy greater living space, and vigorously promoted this innovative theory. However, when people

did not understand the theory' s applicability, they blindly conformed, directly leading to World War II and causing immense human disaster. Therefore, when encountering innovative products or ideas, we should remain vigilant, develop thorough understanding of innovative products and concepts, and only then make subsequent decisions.

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Conformity Effect of the Evaluation of Creative Products

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Abstract

Although previous studies have found that a conformity effect exists widely, whether people are affected by groups in the evaluation of creative products, the new products with the basic characteristics of novelty and practicability, remains a question to be studied. Compared to artistic products, such products are closely related to real life, reflecting actual creativity, and they are typical creative products in life. Although such products reveal new perspectives for consumers, they also promote a sense of uncertainty. Research shows that when faced with uncertainty, participants are more likely to follow others. Almost all studies on this subject have involved the evaluation of creativity, yet novelty and practicability are two important aspects of creativity. Researchers have studied the characteristics of creativity or creative products; however, creative products can be divided into innovative products and renovative products according to their originality. Therefore, we plan to compare the conformity effect of the two kinds of creative products in the evaluation of novelty and practicability in this study.

An "initial evaluation-conformity induced-delay re-evaluation" paradigm was used in Experiment 1, in which participants were first asked to evaluate the practicability (or novelty) of creative products; then the 200 undergraduates' average rating and the participants' own ratings were revealed. The group rating would be revealed as higher or lower than or similar to the participants' rating. Thirty-minutes later, participants evaluated the task again were entirely unexpected. To further analyze the difference in conformity degree between the two types of creative products, the subjects were required to make a certainty judgment on the novelty and practicality of the product in Experiment 2.

Experiment 1 revealed that participants had decreased their practicability (or novelty) ratings when the group rating was lower than their first rating, increased their practicability (or novelty) ratings when the group rating was higher than their first rating, and did not change their ratings significantly when the group rating was comparable to their first rating. In the evaluation of practicability, it was found that the conformity of variation (the second rating-the first rating) of innovative products was significantly higher than that of renovative products. Nevertheless, in the evaluation of novelty, the two types of creative products had the same conformity of variation. Similarly, Experiment 2 found that the uncertainty of the evaluation of the practicability of the innovative

product was greater than that of the renovative product. In the evaluation of the novelty of the two kinds of products, the degree of uncertainty was the same.

In summary, both the evaluation of novelty and the practicability of creative products had a conformity effect. In the practicality evaluation of innovative products, it was easier for respondents to follow others, which might be caused by the greater uncertainty in the practical evaluation of innovative products than in that of renovative products. Nevertheless, in the absence of knowledge of new things, blindly following the crowd is likely to have unimaginable consequences. For long-term development, we should fully understand that innovative products are practical and decide what to do the next.

Keywords: innovative products; renovative products; practicability; novelty; conformity effect; uncertainty

Note: Figure translations are in progress. See original paper for figures.