UNIVERSITEIT GENT

FACULTEIT ECONOMIE EN BEDRIJFSKUNDE

TWEEKERKENSTRAAT 2
B-9000 GENT
Tel. : 32 - (0)9 – 264.34.61
Fax. : 32 - (0)9 – 264.35.92

WORKING PAPER

Attitudinal Effects of First Exposure [1]

Pandelaere Mario[2]

Millet Kobe[3]

Van den Bergh Bram[4]

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[2] Mario Pandelaere, corresponding author, is Senior Lecturer at the Department of Marketing, Ghent University, Belgium.
[3] Kobe Millet is postdoctoral researcher in Marketing at the Department of Marketing and Organization of the KULeuven, Belgium, and visiting Assistant Professor at the Faculty of Economics and Business Administration of the VU University Amsterdam, The Netherlands.
[4] Bram Van den Bergh is PhD student in Marketing at the Department of Marketing and Organization of the KULeuven, Belgium.

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Abstract

Drawing on an analogy with the phenomenon of imprinting, the current paper demonstrates a first exposure effect: People favor stimuli they encounter first. We obtain this effect for relative ratings of music samples (studies 1 and 2) and of pictures of landscapes (study 3) and for absolute ratings of abstract paintings (study 4). In all studies, we eliminated a mere exposure explanation by either statistically controlling for differences in familiarity or by controlling for exposure frequency and/or duration. While several studies have shown that a first stimulus may receive more extensive processing then subsequent ones, the current studies demonstrate that this may result in enhanced liking for the first stimulus.

Attitudinal Effects of First Exposure

One of the central constructs in psychology is the attitude construct. Its importance derives from the assumption that attitudes guide behavior. Although the strength of the attitude-behavior relation may depend on various factors, research generally has documented a positive relation between attitudes and behavior (e.g., Glasman & Albarracín, 2006). Considering the impact of attitudes on behavior, it is important to understand how attitudes form. The current paper demonstrates that the order of exposure to different stimuli may affect attitude formation towards those stimuli. In particular, we find that stimuli to which people are exposed to first are liked better than related stimuli to which they are subsequently exposed. We refer to this phenomenon as the *first exposure effect*.

Consistent with the tripartite model of attitudes (cf. Breckler, 1984), Zanna and Rempel (1988) identified three distinct bases of attitudes: cognition, behavior and affect. Several very well-known models for *cognitive* attitude formation and change have been advanced like the Expectancy-Value model (Fishbein & Ajzen, 1975), the Elaboration Likelihood model (Petty & Cacioppo, 1986), the Heuristic Systematic processing model (Chaiken, Liberman, & Eagly, 1989) and the Unimodel (Kruglanski & Thompson, 1999). All these models share the idea that a person's attitude towards an object is the result of elaborating, but not necessarily very extensively, on certain pieces of information – arguments, evidence, peripheral cues, and beliefs about features.

People's attitudes seem affected not only by their cognitions about an attitude object but also by the attitude-relevant *behavior* they have displayed prior to reporting their attitude. In some situations, people infer their attitudes from their behaviors just like external observers would (self-perception theory, Bem, 1972). In other cases, after engaging in behavior that is inconsistent with their attitudes, people shift their attitudes in the direction of their recent behavior (cognitive dissonance theory, Cooper, 2007; Festinger, 1957). While cognitive dissonance may lead to attitude change, self-perception appears more relevant for attitude formation (Fazio, 1987).

Several investigators have documented that attitudes may be formed in the absence of cognitive deliberation and when people are not justifying past behavior or inferring their attitudes from it. Two well-documented *affective* mechanisms of attitude formation are evaluative conditioning (e.g., Staats & Staats, 1958; De Houwer, Thomas, & Baeyens, 2001) and mere exposure (Zajonc, 1968). In evaluative conditioning, a neutral stimulus is paired with a valenced (positive or negative) stimulus. Repeated exposure to this pairing results in a valence transfer as the initially neutral stimulus accrues

the valence of the paired stimulus. Interestingly enough, as documented by the mere exposure phenomenon, repeated exposure to an initially neutral stimulus without any pairing with a valenced associate is sufficient for that stimulus to become more positive over time. Both the evaluative conditioning and mere exposure deal with attitudinal consequences of *repeated* exposure to the *same* stimulus. The current paper focuses on attitudinal consequences of a *single* exposure to *different* stimuli. In particular, we show that the stimulus to which one is exposed to first enjoys an attitudinal advantage over stimuli to which one is exposed to later on. In addition, this first exposure effect seems to reflect an affective mechanism of attitude formation.

Numerous studies have shown that order of exposure to *information* about an object may affect the attitude towards that object (e.g., Haugtvedt & Wegener, 1994; Igou & Bless, 2003; Petty, Tormala, Hawkins, & Wegener, 2001). For instance, a target person may be liked more when one is first exposed to the positive information regarding that person than when one is first exposed to negative information about that same person (e.g., Anderson, 1965; Ash, 1946). However, this type of effect differs in two important respects from the hypothesized first exposure effect that is the focus of the current paper. First, studies on the order of exposure to information usually focus on a single object and manipulate the order of exposure to the different attributes of that object. In the current studies, however, we manipulate order of exposure to the different objects rather than order of exposure to different attributes of a single object. Second, in studies on the order of exposure to information, the task at hand invites deliberative cognitive processing of the attribute information provided. In contrast, the hypothesized first exposure effect is presumed to be the result of an affective mechanism. No attribute information is provided – making piecemeal cognitive processing unlikely – and the evaluation is more likely to reflect some gut feeling.

The phenomenon that is most analogous to the first exposure effect is the attitudinal consequence of imprinting. Imprinting is the process by which a young animal develops an attachment for the first object it encounters (cf. Bolhuis, 1991). According to Lorenz (1937), the image of the first object that a young animal encounters is somehow stamped or imprinted upon the nervous system. This process of "stamping in" then translates into a preference for that first encountered object. Similar to results obtained in imprinting studies, we hypothesize that a stimulus may be preferred to later encountered stimuli, simply by virtue of its being the *first* to which one is exposed to. Still, imprinting appears a once-in-a-lifetime event restricted to a critical period – although some debate exists about the

nature and length of that period (Bolhuis & Bateson, 1990). The first exposure effect, in contrast, can be observed time and again, each time one is exposed to a novel set of related stimuli. The first stimulus that one is exposed to of that set tends to be liked better than the other stimuli to which one is exposed subsequently.

Clearly, preferences for stimuli may not only be determined by the order of presentation, but also by the intrinsic attractiveness of the diverse stimuli. To control as much as possible for differences in attractiveness – which may obscure the first exposure effect – we used rather similar stimuli. In fact, in the studies involving visual stimuli, the different stimuli were identical save for orientation. To test the first exposure effect, participants were exposed to different stimuli (e.g., alternate versions of a song, different rotations of an abstract painting or pictures and mirror-reversed pictures of landscape pictures). We expected that the stimulus (i.e., song/painting/picture) that was seen or heard first would be evaluated more positively than subsequent stimuli. In the current studies, we controlled for the mere exposure effect by either measuring familiarity with the stimuli or by presenting the stimuli equally often.

Study 1: Music Study

Our first real-life, correlational study aims to demonstrate that the appreciation of a song version not only depends on its familiarity (i.e., a mere exposure effect), but also on the order in which it has been encountered. In particular, we test whether a first encountered version of a song is appreciated more than a later encountered version.

Participants

1364 listeners of a popular radio station (mean age = 27, *SD* = 11.6; 635 women) were recruited through the website of the radio station to participate in an online survey. No participation fee was offered.

Method

Each participant was asked to listen to eight pairs of 30” music fragments (see Appendix). Within each pair, similar fragments from an ‘original’ song and its corresponding ‘cover’ were selected. Participants were asked to indicate which version they liked best (version 1 or version 2), which version they knew best (version 1, version 2, or no difference), and which of the two versions they heard first in their lives – prior to the survey – (version 1, version 2, or don’t know either version). Across the eight music fragment pairs, version 1 referred four times to the original and four times to the

cover, but this was not disclosed to the participants. The song title and performers were not disclosed either.

Results and Discussion

Using multilevel logistic regression, we predicted preference for version 1 over version 2 entering two predictors simultaneously: Knowing version 1 best (scored +1; "no difference" was scored 0 and "knowing version 2 best" was scored -1), and having heard version 1 first (scored +1; "don't know either version" was scored 0 and "having heard version 2 first" was scored -1). Consistent with the mere exposure effect, knowing version 1 best led to an increased liking for version 1 relative to version 2, $z = 39.02$, $p < .001$, but consistent with the hypothesized first exposure effect, respondents' preference also shifted toward the version of the song that they indicated having heard first, $z = 15.48$, $p < .001$. This suggests that the first stimulus is preferred over a stimulus that is encountered later.

Clearly, the above analysis depends on respondents' subjective assessment of having heard a particular version first or not. To provide further support for the hypothesized first exposure effect, two additional analyses were conducted. First, under the assumption that people are more likely to have heard the original version first if they are born before its release then if they are born after its release, respondents should indicate greater liking for the original song if they are born before its release rather than after it. Considering the current analysis involves the preference of the original song over a cover version, we recoded participants' responses to the question which version they knew best (version 1, version 2, or no difference) into whether or not they knew the original version best (yes, no, indifferent). A multilevel logistic regression analysis that included "knowing the original version best" (i.e. familiarity) as predictor indicated that respondents were indeed more likely to prefer the original version if they were born before its release than if they were born after it, $z = 2.15$, $p = .03$. Second, respondents indicating knowing neither version of a song, preferred the version that was presented on the left-hand side over the version that was presented on the right-hand side in 55.22% of the cases, $z = 2.49$, $p = .01$. Although we had not tracked which version our respondents had sampled first, a follow-up study (n = 78) revealed that 96.2% of participants sample the 'left version' prior the the 'right version'. Thus, it seems that, among respondents not knowing any version of a given song, a significant preference for the version that was heard first (i.e., the left) was observed. Despite the correlational nature of this first study, we obtained evidence that individuals prefer the song (1) they indicated

having heard first prior to the study, (2) that was released before their birth or (3) they heard first in this study.

Study 2: Song Study

In the Music study, we used songs with which a range of respondents would be familiar to demonstrate the first exposure effect in a real-life setting. Consequently, however, we had no control over the order of exposure of the different songs prior to the study, necessitating relying on self-reports about participants' order of experience during their lifetime. In the current study, we minimize the possibility of pre-experimental exposure by using two versions of a song our participants would not be acquainted with. This eliminates the need to rely on self-reports but necessitates tracking the order of exposure to alternate versions of a song. The version to which participants are exposed first in the experimental session should be preferred.

Participants

Seventy-five students from various departments the University of Leuven (mean age = 21.28, *SD* = 1.81; 50 women) participated in the current and unrelated studies in exchange for €6.

Method

The participants had to listen to two 30" music fragments (two versions of "Boom Boom") and were free to choose which fragment they wanted to hear first (the order of exposure was unobtrusively tracked). Pretesting a list of songs had indicated that "Boom Boom" was least likely to be known by our student participant population.

The fragments were labeled "§§§§§" and "#####" to eliminate the possibility that familiarity with a performer's name would affect participants' preference. For half of the participants, "§§§§§" referred to the version of John Lee Hooker and "#####" to the version of The Animals, and vice versa for the other participants. In addition, the position of the alternate versions was counterbalanced: For half of the participants, John Lee Hooker was presented on the right-hand side, and for the other half of the participants on the left-hand side. After exposure to both songs, participants had to indicate their relative preference on a 201-point visual analogue scale with "indifferent" as the midpoint and the labels of the songs as endpoints. Afterwards, they had to indicate whether they had ever heard this song prior to the experiment ("§§§§§"; "#####"; none or both). To exclude the effect of pre-experimental exposure to any or both of the versions, participants indicating they knew at least one of the versions of

the song were removed from the analysis (N = 15). We hypothesized that participants would indicate a preference for the version they listened to first.

Results and Discussion

The preference ratings were recoded to indicate the relative preference for the stimulus that was heard first (+100) over the stimulus that was heard second (-100), with 0 as a point of indifference. The song that was listened to first was preferred over the song that was heard second, $t(59) = 2.59$, $p = .02$, ($M = 19.17$; $SD = 63.43$). 98.7 % of the participants clicked on the left version first, providing further support for the findings of Study 1.

Study 3: Landscape Studies

The Landscape studies aim to replicate and extend the findings of the previous studies by demonstrating attitudinal effects of first exposure within a different modality (i.e., visual rather than auditory). Possibly, the first exposure effect is obtained only when people can attribute their enhanced liking for the first stimulus over subsequent stimuli to differences on one or more important dimensions. Clearly, alternate versions of a song may differ on several dimensions (e.g., tempo, timbre, voice of the artist,…) to which differences in liking could be attributed. In the following studies, we used original images of landscapes and their mirror reversed counterparts as stimuli. Images and mirror reversed images are identical save for orientation, an unimportant difference. If a first exposure effect is still obtained for stimuli that differ only trivially, this would suggest that the first exposure effect is very basic and not the result of attribute-based processing. We ran three different Landscape studies with slightly different methodologies and we will present each of the studies individually.

Landscape Study 3a

Participants

Seventy-eight students from various departments the University of Leuven (mean age = 22.34, $SD = 4.11$; 49 women) participated in the current and unrelated studies in exchange for €6.

Method

In the exposure phase, the participants received 20 pairs of pictures of landscapes and had to indicate on a visual analogue scale their preference for the left (-100) or the right (+100) stimulus. Each pair was displayed until the relative preference was indicated. Participants were thus free to visually inspect each pair of pictures as long as they wanted to. Exposure duration to each pair was measured and included in the statistical analysis, but this did not change the pattern of the results. The stimuli

were presented in 4 blocks of 5 pairs. Order of exposure was manipulated by exposing participants in the first block to 'original' pairs (e.g., A & B) and in the second block to the corresponding 'mirror reversed' pairs (e.g., mirror A & mirror B). The third and fourth blocks comprised different original images and their corresponding mirrored versions, respectively. In the test phase, participants received 20 pairs, each pair composed of an 'original' image and its 'mirror reversed' version (e.g., A & mirror A) and had to indicate their relative preference for the left (-100) or the right (+100) stimulus. We hypothesized that participants would prefer the stimulus that was presented first (i.e., the 'original' image) over the stimulus that was presented later (i.e., the 'mirror reversed' image). The preference ratings were recoded to indicate the relative preference for the stimulus that was presented first (+100) over the stimulus that was presented second (-100), with 0 as a point of indifference. The individual ratings were subsequently averaged across pairs. We expected these average ratings to differ significantly from the neutral midpoint (0) in positive direction.

Results and discussion

Consistent with the previous studies, the stimulus presented first was significantly better liked than the stimulus presented later, $t(77) = 2.37$, $p = .02$, see Table 1. Clearly, the effect seems rather limited as the preference advantage for the stimulus that was presented first is only 2.44 point on a 201-point scale. Note, however, that the two stimuli for which a relative preference is required are *identical* save for their orientation. So, participants have to indicate which of two virtually indistinguishable stimuli they prefer. This probably limits the extent to which participants are going to indicate preferring one version much more than the other version. In spite of this, they consistently indicate preferring the version they were exposed to first slightly over the version they were exposed to later.

Insert table1 about here

Landscape Study 3b

Participants

One hundred-and-thirteen students from various departments the University of Leuven (mean age = 20.99, *SD* = 1.56; 69 women) participated in the current and unrelated studies in exchange for €6.

Method

Study 3b was designed identically to Study 3a, with two exceptions. First, the same image pairs of Study 3a were displayed for 4 seconds, both in the exposure and test phase. Participants could indicate their relative preference only after the picture pair had disappeared. This controls for not only for exposure frequency but also for exposure duration and rules out a mere exposure account of the obtained results. For example, participants in Study 3a might have been exposed longer to the original image than to its mirror reversed counterpart, potentially explaining the enhanced preference for the original image. Second, we employed a counterbalancing procedure in the exposure phase (i.e., for half of the participants, the mirror images were presented first and the original images were presented second), but this counterbalancing factor was not significant and ignored in the remainder.

Results

Once again, we found that the stimulus presented first was significantly better liked than the stimulus presented later, $t(112) = 3.45$, $p < .001$, see Table 1.

Landscape Study 3c

Participants

One hundred-and-fourteen students from various departments the University of Leuven (mean age = 21.5, *SD* = 0.98; 84 women) participated in the current and unrelated studies in exchange for €6.

Method

Study 3c was identical to Study 3b, with one exception. In the test phase of study 3c, half of the participants first had to recognize which picture was presented, while the other half first had to indicate which of the two pictures they preferred. All 20 pairs had to be rated first on recognition (preference), before participants indicated their preference (recognition) ratings for the same 20 pairs. Preference and recognition ratings had to be indicated on a scale from -100 (definitely the left stimulus) to +100 (definitely the right stimulus). The preference ratings were recoded to indicate the relative preference for the stimulus that was presented first (+100) over the stimulus that was presented second (-100), with 0 as a point of indifference. Recognition ratings were similarly recoded to indicate 'definitely recognize the second stimulus as the first one' (-100) to 'definitely recognize first stimulus as the first one' (+100).

Results and Discussion

Replicating the previous Landscape Studies, we found that the stimulus presented first was significantly better liked than the stimulus presented later, $t(113) = 4.79$, $p < .001$, ($M = 4.93$; *SD* =

10.99), see Table 1. Because individuals may have very little basis for claiming a strong difference in liking for stimuli that are, save for orientation, identical, the relative preference for the stimulus presented first is small in an absolute sense (across the three different studies: $M = 3.38$ on a 201-pointscale, $SD = 9.41$, $t(304) = 6.27$, $p < .001$). Claiming a strong certainty in recognition is much more warranted as one of the two images clearly was presented first. Indeed, a repeated measures ANOVA indicated that the effect of first exposure on recognition is significantly stronger than the effect on preference, $F(1,112) = 8.82$, $p < .005$. Participants use more extreme ratings to indicate their recognition than to indicate their liking. To assess whether the effect of exposure order on preferences is due to its effect on recognition of the first presented stimulus as such, we conducted a multilevel regression analysis, in which we predicted relative liking using recognition ratings and exposure order, simultaneously. Correctly or falsely recognizing a given stimulus as being presented first did increase relative liking for that stimulus, $t(2165) = 9.32$, $p < .001$. However, this did not eliminate the relative preference for the image participants really had seen first, $t(113) = 3.03$, $p < .01$, indicating that the preference for the first encountered stimulus is not merely the result of recognizing a given stimulus as being presented first.

Study 4: Pollock Study

In this study our goal is twofold. So far, we only considered sets comprised of two stimuli, making it impossible to disentangle attitudinal effects of *first* exposure from attitudinal effects of *earlier* exposure. Indeed, it is possible that the stimulus that is encountered second is preferred over a stimulus that is encountered third (i.e. liking is a gradual function of position rather than an all-or-none function of being first). In the Pollock Study, ten sets of *four* related stimuli – different rotations of abstract painting – are used to explore whether attitudinal effects are due to first exposure rather than to earlier exposure. Second, we test the robustness of the effect by assessing absolute evaluations rather than relative preferences. If we can demonstrate attitudinal effects without employing a relative preference elicitation paradigm, the proposed effect is not bound to a specific methodology. Landscape Study 3c already suggests that the attitudinal effects are not entirely dependent on recognition. The current study elicits immediate evaluations. This minimizes the role of memory because no comparisons with previously encountered stimuli need to be made to immediately evaluate the exposed stimulus.

Participants

One hundred-and-nine students from various departments the University of Leuven (mean age = 21.5, *SD* = 0.99; 80 women) participated in the current and unrelated studies in exchange for €6.

Method

Participants were exposed to 10 different abstract art paintings (cropped to a square) of Paul Jackson Pollock (1912-1956), in four different orientations (0°, 90°, 180° and 270°). The 40 (10 different paintings × 4 orientations) stimuli were presented individually and in a different randomized order for each participant. Participants indicated their liking for each of the paintings on a scale from -3 (don't like it at all) to +3 (like it very much).

Results and Discussion

Across the 10 paintings, the orientation that appeared first was appreciated more (M = -.45, SD = 2.11) than the orientation appearing second (M = -.61, SD = 1.99), $t(324) = 2.19$, $p < .01$; appearing third (M = -.62, SD = 2.01), $t(324) = 2.29$, $p < .01$; and appearing fourth (M = -.69, SD = 2.04), $t(324) = 3.19$, $p < .01$. Appreciation did not differ among the orientation shown second, shown third and shown fourth, all ts < 1, all ps > .31. This pattern cannot be attributed to boredom, because one would then expect a more gradual decline in appreciation. In this study, the more favorable attitude towards the first orientation cannot be driven by enhanced memory of that orientation, since it was immediately evaluated. It remains possible, however, that the stored representation of a first stimulus leads to an unfavorable evaluation of the second, third or fourth stimulus. As such, these findings appear at odds with a perceptual fluency account (e.g., Bornstein & D'Agostino, 1994). One could argue that, if anything, the processing of a rotated painting should be more fluent after exposure to a structurally similar stimulus and should lead thus to better evaluations.

General Discussion

Across modalities (auditory and visual), across stimuli (music, photographs and abstract art) and across rating procedures (relative preferences and absolute evaluations), we demonstrated that a first encountered stimulus tends to be liked better than later encountered ones. The obtained first exposure effect appears to be an all-or-none effect. One's attitudes are biased toward the very first item. In the Pollock study, no gradual change in attitudes is observed beyond the first item.

The observed first exposure effect seems to be both affectively and cognitively based. In Landscape study 3c, we measured not only preferences for the landscape pictures, but also whether participants could correctly identify the orientation of a given landscape they had been exposed to first.

A multilevel analysis indicated that participants tended to prefer the orientation they *thought* having seen first to the orientation they *thought* having seen later. At the same time, however, the orientation that was *actually* shown first tended to be preferred to the orientation that was *actually* shown later. While the former finding seems to refer to a cognitive basis of attitude formation, the latter finding seems to imply an affective basis. A stimulus seems to be preferred to related stimuli that are subsequently encountered. This process is reminiscent of imprinting (e.g., Lorenz, 1937).

What are the potential cognitive and affective mechanisms behind the observed first exposure effect? The *cognitive* contribution to the first exposure effect may be due to an association between first and best. Interestingly, at some level people seem to believe that being first has various advantages as described in various idioms like “first is foremost” and “the early bird gets the worm” (cf. Bolton, 2007). Also, finishing first is a memorable accomplishment while finishing second is not. Possibly, items that participants thought were presented first were liked more than items that were thought to have been presented second, by virtue of the first-best association.

The *affective* mechanism behind the first exposure effect is more speculative. In the current studies, we obtained a preference for the first encountered stimulus, even when controlling for exposure frequency and exposure duration. This excludes a simple mere exposure interpretation. Still, although the current first exposure effect is different from the mere exposure effect, one may wonder whether the underlying mechanisms for the two phenomena are similar. The mechanism underlying mere exposure that is most supported by research is the fluency/misattribution mechanism (e.g., Bornstein & D’Agostino, 1994). According to that mechanism, previously presented stimuli are easier to encode and process than novel or unfamiliar stimuli. This enhanced perceptual fluency is then not correctly attributed to frequency or duration of exposure, but incorrectly attributed to liking, resulting in a preference for old over new stimuli. Although fluency/misattribution may explain mere exposure effects, it is less clear how it accommodates our findings. On the one hand, the stimulus one is exposed to first may be encoded better and consequently easier to retrieve (i.e. retrieved more fluently). This would imply a preference for the first encountered stimulus. On the other hand, the processing of a mirror reversed image, a rotated painting or the cover of a song could be processed more fluently after exposure to the original image, painting or song. This would imply a preference for the former over the latter, which is counter to our observations. So, whether or not a fluency/misattribution explanation is

compatible with the first exposure effect depends on whether processing a given stimulus facilitates or inhibits processing of a related stimulus.

The registration-without-learning phenomenon indicates that processing a given stimulus may inhibit processing of related stimuli. Registration-without-learning refers to the situation in which repeated exposures to a stimulus do not increase people's ability to discriminate that stimulus from similar stimuli, although it does increase people's estimates of how often the target stimulus has been presented (e.g., DiGirolamo & Hintzman, 1997; Sheffert & Shiffrin, 2003; but see Miller, Westerman, & Lloyd, 2004 for some limiting conditions). DiGirolamo and Hintzman (1997) found evidence that encoding of a repeated object is *perceptually* biased by the first exposure. They showed participants an identical picture five times. In either the first or the last exposure of the five, the picture was presented in a different orientation than in the four remaining exposures. After the exposure phase, participants had to indicate whether they had seen the left-oriented picture, the right-oriented picture, or both. Participants were more likely to claim having seen the picture only in the infrequent orientation if that orientation corresponded to the first exposure than if it corresponded to the fifth exposure. This indicates a qualitatively different encoding of first exposures than of very similar repeated exposures. A better encoding of a first stimulus than a similar related stimulus is also implied by change blindness – failure to detect changes in visual scenes (e.g., Simons & Levin, 1998) – and change deafness – failure to observe changes in speakers' voices (Vitevich, 2003). A perceptual bias toward a first stimulus is similar to the imprinting phenomenon: a first encountered moving object is stamped into the central nervous system (i.e. leaves more of a mental mark, e.g. Lorenz, 1937). Just as imprinting translates in animal preference for the first moving object, a better encoding of the first encountered stimulus may translates into preference for that stimulus. Future studies are required to investigate why such better encoding may affect preferences.

The effect of exposure on attitudes is epitomized by the mere exposure effect: people develop a preference for initially neutral objects as they are *more* exposed to it. The current paper demonstrates that people's preferences are not only shaped by repeated exposure or by exposure duration (cf. Bornstein, 1989), but also by first exposure.

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Table 1.

Overview of the Landscape Studies: Preferences and Correct Recognition for the First Presented Stimulus (positive scores indicate higher liking and better than random recognition of the first presented stimulus)

Study	N	Rating Order	Preference for the first stimulus	Correct recognition of the first stimulus
			M (*SD*)	M (*SD*)
3a	78	-	2.44 (*9.10*)*	-
3b	113	-	2.47 (*7.60*)***	-
3c	55	preference-recognition	3.70 (*10.89*)**	5.75 (*9.09*)***
3c	59	recognition-preference	6.07 (*11.04*)***	12.80 (*14.59*)***

Note. *p < .05; **p < .01; ***p < .001

Appendix

Original-cover Pairs used in the Music study.

Song	Original performer	Release original	Cover performer	Release cover
Unchained Melody	Righteous Brothers	1966	Gareth Gates	2002
American Pie	Don Mclean	1972	Madonna	2000
Mandy	Barry Manilow	1975	Westlife	2003
Forever Young	Alphaville	1984	Paul Michiels	2000
Faith	George Michael	1987	Limp Bizkit	2002
Take my Breath away	Berlin	1986	Jessica Simpson	2004
Désenchantée	Mylène Farmer	1991	Kate Ryan	2002
Aïsha	Khaled	1996	Outlandish	2003