



When motion changes liking: Evaluative conditioning with motion as unconditioned stimulus



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ARTICLE INFO

Article history:

Received 8 September 2014

Received in revised form 30 October 2014

Available online 22 November 2014

Keywords:

Evaluative conditioning
Motion

ABSTRACT

The evaluative conditioning (EC) effect refers to change in the liking of a stimulus (conditioned stimulus, CS) due to the fact that the stimulus has been paired with an affective stimulus (unconditioned stimulus, US). Most studies use a picture-picture paradigm in which static visual stimuli are used as CSs and USs. Because stimuli in the environment are most often encountered in motion, we investigated the impact of motion on the likeability of a stimulus. In this experiment, pictures of consumption products (CSs) were presented in motion patterns known to elicit positive, neutral or negative affective responses. Subsequent to this pairing, a significant preference for CSs paired with the positive motion was observed. This experiment introduces a new method to induce changes in liking, called the picture-motion paradigm, and shows that motion can be used as an affective stimulus in EC. Theoretical and practical implications are discussed.

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Liking plays a crucial role in the orientation of normal and clinical behaviors, cognitions, and emotions. People tend to approach the objects or people they like and avoid stimuli they dislike. Investigations suggest that most of our likes and dislikes are learned rather than innate (Rozin & Millman, 1987). Thus, it is important to understand how likings are formed and how they can be changed. Such emotional learning can be studied via an evaluative conditioning (EC) paradigm. The EC effect refers to the change in the liking of a stimulus (conditioned stimulus, CS), which results from pairing this stimulus with another positive or negative stimulus (unconditioned stimulus, US) (De Houwer, 2007).

Contemporary work in the EC field was initially inspired by Levey and Martin (1975) using a so-called picture-picture paradigm. In this study, subjects were first asked to classify a set of postcard pictures into liked, disliked, and neutral categories. During the conditioning phase, initially neutral pictures (CSs) were paired with liked, disliked, or other neutral pictures (USs). Final ratings of CSs showed a preference for CSs that were paired with liked USs over those paired with disliked pictures. These authors introduced the term of evaluative conditioning to characterize this change in liking.

Since this early demonstration, EC has been studied in a large variety of areas in psychology including learning psychology, emotion research, neuroscience, social psychology, nutrition research, consumer science, and clinical psychology (see De Houwer, Thomas, & Baeyens, 2001; Hofmann, De Houwer, Perugini, Baeyens, & Crombez, 2010; for reviews). In most EC experiments, visual stimuli were used successfully as USs to observe changes in liking CSs from association procedures. These stimuli included pictures of human faces (Baeyens, Eelen, Van den Bergh, & Crombez, 1992; Walther, 2002), cartoon

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characters (Field, 2006; Olson & Fazio, 2001), nonsense words (Staats & Staats, 1957), pictures of consumption products (Pleyers, Corneille, Luminet, & Yzerbyt, 2007) and pictures of food (Dwyer, Jarratt, & Dick, 2007).

Experimental methodologies using visual stimuli share a common point: CSs and USs are presented in a static way during the conditioning phase. However, it is clear that in the environment, most stimuli encountered appear in motion. Here, the term “motion” refers to the action or process of moving (Oxford Dictionaries, 2014). To the best of our knowledge, this dimension is not reflected in EC experiments. Nevertheless, the way in which a stimulus is presented has an impact on its emotional evaluation (Ravaja, 2004).

It is important here to distinguish between action/motor behaviour studies and perceptual ones. A lot of studies investigating “motion” were in fact designed to look into what present authors call “executed movements” (Neumann & Strack, 2000; Centerbar & Clore, 2006). Most of this research shows that executing a movement toward the body (e.g. pulling a lever = approach) is related to positive affect while making a movement away from the body (e.g. pushing a lever = avoidance) is linked to negative emotion. Instead of studying executed movements, the present study aims to investigate “perceived motion”. In this framework, motion is not made by the participant but is only perceived. Here, objects do not move toward or away from the individual. Dynamic Stimuli are just seen on a 2D plane screen so that the optical size of the object (i.e., the presented figure) does not vary, contrary to the study of Hsee, Tu, Lu, and Ruan (2014). Seeing a moving single object can trigger automatic and unconscious emotions. Research showed that watching a black dot executing a wave-like motion caused a positive emotional reaction (Podevin, Chafi, Rusinek, & Békaert, 2012), whereas watching the same dot executing a parabolic motion triggered a negative emotional reaction (Podevin et al., 2012; Chafi, Gambet, Crespel, Schiaratura, & Rusinek, 2014). Moreover, the same pattern of results was obtained when the black dot was replaced by emotional facial expressions (Chafi, Schiaratura, & Rusinek, 2012). As liking and emotions are strongly intertwined (North & Hargreaves, 1997), we postulate that these motion patterns can condition emotional responses to neutral stimuli.

In the present study, we examined whether a picture-motion paradigm, consisting in pairing a neutral stimulus with a liked or disliked motion, will produce an EC effect. That is, we investigated if motion can be used as an affective stimulus (i.e. the US) in EC.

Method

Participants and design

Forty one students (Mean Age = 20.95; 21 women) from Lille University, participated in this experiment. Each participant filled in a consent form before the experiment and was debriefed after her/his participation. The design of the study included the motion’s valence (positive, negative and neutral) as a three-level within-subjects factor. Participants were randomly assigned to one of three randomizations. All participants were tested individually.

Material

CSs

The six CSs were six pictures of common consumption products (4 cm large), for which the brands used were unknown in France (The six products used were Muesli, Toothpaste, Water, Chips, Chewing Gum and Milk). This material was extracted from Pleyers et al. (2007) study. Each CS had been pretested by these authors on a 9-point liking scale and shown to elicit a neutral affective response and to be different from existing brands in France.

USs

The three USs were three motions (e.g. negative, neutral and positive). The negative motion was parabolic motion, the neutral motion was translational motion, and the positive motion was wave-like motion (Podevin et al., 2012) (Fig. 1). Motion patterns lasted 5 s each and were presented from left to right. The negative motion’s speed was 3.20 cm/s, and it was composed of a 42° angle for the ascending motion and a 42° angle for the descending motion. The neutral motion consisted in a left-to-right rectilinear translation, and its speed was 5.10 cm/s. The positive motion was composed of a 60° angle for the descending and ascending motions. Its speed was 5.88 cm/s.



Fig. 1. Illustrations of three CS-US pairs. From left to right: negative motion, neutral motion and positive motion. Arrows were not presented to participants. They just depict the motions executed by products.

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