A critical review of classical conditioning effects on consumer behavior

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A R T I C L E   I N F O

A B S T R A C T

This paper reviews extant research in classical conditioning effects in consumer behavior and advertising contexts to determine whether they are real or illusory. The empirical results reveal that in cases where classical conditioning effects were found, they could be countermined by the deficiencies in research methodologies, demand artifacts, the mediating role of contingency awareness, or some alternative mechanisms. In cases where the effects were not observed, the failure could be attributed to violations of the conditions for classical conditioning to occur or absence of contingency and demand awareness. It is concluded that thus far there has been no convincing evidence for classical conditioning effects on consumer behavior. Suggestions for future research in this area are presented.

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1. Introduction

Inspired by classical conditioning principles, many ads show the advertised product together with celebrities or pleasant stimuli (objects, scenes, persons, and so forth) once or several times with a hope that positive feelings from those stimuli will transfer to the product and thus inducing its liking. Classical conditioning has been generally accepted in consumer behavior literature as a mechanism producing advertising effects (Schiffman and Kanuk, 2010), as a possible mechanism in the peripheral route of persuasion (Edell and Burke, 1984; Petty et al., 1983), and as pertinent in passive consumption context (Gorn, 1982; Greenwald and Leavitt, 1984).

According to the classical conditioning model of learning, which is based on Pavlov's (1927) work, an unconditioned stimulus (hereafter referred to as US or USs for the plural form) is a biologically significant stimulus such as food, pain, electric shock that generates a response (for example, salivation when seeing certain foods) from the start; this response is referred to as an unconditioned response. Repeated pairings of a conditioned stimulus (hereafter referred to as CS or CSs for the plural form, for example, the ring of a bell) with an US (for example, meat paste) will enable the CS to elicit a conditioned response (for example, salivation) in an unconscious and automatic manner. When the US is an affect (Razran, 1938), for instance, music and humor, the conditioning may be referred to as affective conditioning.

1.1. Types of classical conditioning

Within the paradigm of classical conditioning, it has been proposed that a distinction be made between different types of conditioning, namely, signal learning and evaluative learning (Baeyens

and De Houwer, 1995; Baeyens et al., 1998; Hammerl and Grabitz, 1996). In the signal-learning notion of classical conditioning, an organism engages a higher cognitive process and learns the "if-then" relationship between the CS and the US (Rescorla and Wagner, 1972). Repeated pairings of the two stimuli to be associated is essential in establishing and strengthening their associative link (Martindale, 1991). Through a signal learning process (Rescorla, 1988), increased repetition of the pairing of two stimuli fortifies confidence that the presence of one stimulus predicts the presence of the other. The contingency or statistical correlation between the CS and the US is an important determinant of signal learning.

Evaluative (attitude) conditioning, on the other hand, concerns the acquisition of preferences and refers to the change in valence of initially neutral CSs after pairing with positive or negative USs. Evaluative conditioning is usually conceptualized as a form of evaluative learning that occurs without awareness of the CS–US contingencies (De Houwer et al., 2001; Stahl et al., 2009). In a typical evaluative conditioning study (e.g., De Houwer et al., 2001; Walther, 2002), a subjectively neutral stimulus is repeatedly paired with a subjectively liked or disliked stimulus, leading to a valence shift in the formerly neutral stimulus. That is, the CS in an evaluative conditioning paradigm does not attain a predictive value but simply obtains the affective qualities of the US.

Three major characteristics of evaluative conditioning are as follows. First, evaluative conditioning does not seem to depend on contingency awareness of the CS and the US (Baeyens et al., 1990; De Houwer et al., 2001). Second, it does not appear to rely on the statistical CS–US contingency but seems to be sensitive to contiguity, that is, to spatiotemporal CS–US co-occurrences (Baeyens et al., 1993; De Houwer et al., 2001). Therefore, weak contingency in an evaluative learning paradigm (e.g., single CS or US presentations in the acquisition phase) does not automatically

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reduce conditioning, as would be the case in signal learning (Baeyens et al., 1993). Third, after successful evaluative conditioning, single CS presentations may not alter its valence; in other words, evaluative conditioning seems to be extinction resistant (Baeyens et al., 1988; De Houwer et al., 2001).

However, it has been criticized that the conclusions about evaluative conditioning without CS–US contingency awareness often relied on questionable experimental designs or failed to capture subtle but substantial manifestations of such awareness (Field, 2000; Field and Davey, 1999; Hammerl, 2000; Lovibond and Shanks, 2002). This view/critique implies that the differentiation between signal learning and evaluative conditioning as two types of classical conditioning is rather obscure and in fact, evaluative conditioning is merely a situation when CS–US contingency awareness cannot be detected and the focus is on the change in valence of initially neutral CSs after pairing with positive or negative USs. It follows from this view/critique that CS–US contingency awareness underlies any observed classical conditioning effect.

1.2. Objectives and contributions of the study

Consumer researchers have empirically investigated classical conditioning effects after Gorn's (1982) experiments. The results, unfortunately, have been mixed. Given three decades of classical conditioning studies in consumer behavior and the prevalent application of classical conditioning principle knowingly or unknowingly in advertising, this study aims to review classical conditioning research in the realm of consumer behavior and advertising to find out whether the effects are real or illusory. In addition, the study discusses the common weaknesses of research in this area and suggests what future research in this field should improve. Sharing the same view discussed in the preceding paragraph, this review covers studies in both signal learning and evaluative conditioning paradigms of classical conditioning as long as they involve consumer behavior and advertising. Due to space constraint, not all studies reviewed will be evaluated in detail.

The contributions of this study are two. First, in terms of academic contribution, this study pinpoints common weaknesses of research in classical conditioning and suggests ways to improve research in this area in order to increase internal validity and yield results that are more credible.

Second, in terms of managerial contribution, this study provides guidelines for advertisers whether they should use the classical conditioning principle in designing and producing ads, which are usually costly. For example, a television commercial involving non-celebrity actors, storyboarding, and script writing with a length of 30-s costs on average US$3500–US$35000 to produce (Maus Media Group, 2011). The cost to create a full page colored ad by a freelancer may start from US$2500 and much more by a large advertising agency. The media expenses associated with showing the ads are even much higher. For instance, the average price of a 30-s television spot in the first quarter of 2011 in the USA was US$108,956 (Crupi, 2011). A full-page ad in *Cosmopolitan* magazine costs US$244,100 for colored and US$195,300 for black-and-white ads, respectively (Cosmopolitan, 2012). Clearly, it is essential that marketers know whether ads based on classical conditioning concepts are effective given such large expenditure of producing and displaying ads.

2. Obstacles and methodological requirements for classical conditioning

It is essential that the conditions hindering classical conditioning be examined so that conflicting studies can be assessed. Primarily based on McSweeney and Bierley's (1984) review, the obstructions to classical conditioning are as follows.

2.1. The CS lacking predictiveness of the US

In order for classical conditioning to occur, the CS should predict the US. The CS will have low predictiveness of the US if (i) both stimuli are presented simultaneously; (ii) the CS is presented constantly, followed occasionally by the US (Brown and Jenkins, 1968); (iii) either the US or the CS is frequently encountered alone; (iv) the US comes before the CS (i.e., backward conditioning); and (v) the CS and the US are presented randomly with respect to each other. When this predictive relation is violated, the conditioned behavior will not be established.

However, Shurtleff and Ayres (1981) found backward conditioning. Spetch et al. (1981) reviewed experimental evidence and concluded that backward conditioning could produce effects similar to those obtained from forward conditioning. In addition, such effects could not be explained by factors other than stimulus pairing. Rachman's (1991) review suggests that conditioning can occur even when the CS and the US are not contiguous.

In order to say that conditioning occurs in an experiment, appropriate control groups are needed for comparison with the conditioning groups (Rescorla, 1967). The experimental group is exposed to the CS, followed by the US. A random control group is exposed to the same quantity of CSs and USs as the experimental group, but these stimuli are presented randomly with respect to each other. Classical conditioning can be said to occur only if there is a response in the experimental group but not in the random control group. This way, the differences between the two groups can be explained by the degree to which the CS predicts the US and cannot be attributed to differences in familiarity with the CS or the US, i.e., the mere exposure effect (Zajonc, 1968) or to any interaction between them (pseudoconditioned responses).

Even though the CS precedes and predicts the US, conditioning may not occur under the situations detailed below.

2.2. Overshadowing

Overshadowing can prevent classical conditioning from occurring (Pavlov, 1927). In an overshadowing procedure, two CSs different in salience, such as a loud noise and a dim light, are presented together before the US. Conditioning may occur to the more salient CS (in this example, the loud noise) only because the less salient CS is overshadowed by the more salient one. This suggests that salient stimuli coinciding with the target CS (for instance, a highly sexy model and a brand in an ad) be removed.

2.3. Blocking

Blocking can forbid classical conditioning (Kamin, 1969). In a blocking procedure, an individual is given experience that CS1 is predictive of an US (for example, dark clouds predict rain). Later, CS1 and CS2 (for example, a barometer that also predicts rain) are presented together, followed by the same US. No conditioned response occurs to CS2, however. In effect, prior experience with CS1 blocks conditioning to CS2. In marketing, this indicates that a familiar US should not be used. For instance, using a celebrity endorser who has been well established as an endorser for other products suppresses forming an association between that celebrity and a newly endorsed product (Till, 1998).

2.4. US pre-exposure effect

Classical conditioning will not occur if individuals have encountered the US alone (Mis and Moore, 1973; Rescorla, 1973). The implication is the same as that for the blocking effect, namely, a familiar US, such as a famous song, should not be used.