Journal of Experimental Social Psychology 71 (2017) 68–82

Contents lists available at ScienceDirect

Journal of Experimental Social Psychology

journal homepage: www.elsevier.com/locate/jesp

The Self-Referencing task: Theoretical overview and empirical evidence

Simone Mattavelli *, Juliette Richetin, Marcello Gallucci, Marco Perugini

Department of Psychology, University of Milan-Bicocca, Piazza dell'Ateneo Nuovo, 1, 20126 Milan, Italy

HIGHLIGHTS

- Presenting the Self-Referencing task, a new learning procedure to build self-objects links
- Focusing on the way through which these links are operationalized: intersecting regularities
- Meta-analytical results show the genuine effect of the task on liking and identification.
- Testing what factors qualify the magnitude of the effect
- Discussing potential applications on behavior change and other extra-evaluative domains

ARTICLE INFO

Article history:
Received 26 June 2016
Revised 15 December 2016
Accepted 19 February 2017
Available online xxxx

Keywords:
Self-Referencing task
Intersecting regularities
Self
Attitude learning
Extra-evaluative learning

ABSTRACT

This contribution provides both a theoretical framework and a quantitative summary of the empirical evidence on a recent evaluative learning procedure, namely the Self-Referencing (SR) task. The SR task is introduced by describing its key features, with emphasis on the intersecting regularities principle as its underlying learning mechanism and on the potential advantages related to use the self as a source of evaluative learning. Then, across 53 studies, we meta-analyzed the SR effect on implicit and explicit evaluative and extra-evaluative domains. The meta-analytical technique also allowed us to test for boundary conditions of the effect. We identified potential moderators related to either general, specific or task-unrelated characteristics of the SR paradigm and tested their power to account for variations in the effect, with special attention on the role played by memory of the intersecting regularities. Overall, findings suggest that the SR task is effective in leading to both evaluative and extra-evaluative learning. We discussed the robustness of the effect and some relevant findings pertaining to the moderators. In particular, we focused on a) the fact that the effect can be qualified by the type of stimuli used in the task as either source or target of attitudinal change and b) the importance of processing the intersecting regularities, which is as a key driver that qualifies the magnitude and the direction of the effect. Both practical and theoretical implications from the moderation analyses are also discussed.

1. Introduction

In many daily life situations, individuals' preferences drive their behavior. One central question thus is how they come to like certain things and dislike others. Even though research postulates the existence of innate and evolutionary-relevant preferences (see Poulton & Menzies, 2002 for a non-associative acquisition of fear), most of our likes and dislikes result from processes that involve learning (Rozin & Millman, 1987). Therefore, understanding the ways through which individuals learn their preferences is an important issue. Theories of evaluative learning[1] assume that both implicit and explicit preferences can be acquired through alternative routes (e.g., Bodenhausen & Gawronski, 2013; Gawronski & Bodenhausen, 2006, 2011). A more deliberate route involves the scrutiny of descriptive information about an object. For instance, we can learn to like a car through a commercial ad in which persuasive arguments emphasize its quality. A less deliberate route implies the association of the attitude object with positive or negative features of elements of the context in which it is encountered (Bodenhausen & Gawronski, 2013; Chen & Chaiken, 1999; Petty &

[1] Throughout the paper, the term 'evaluative learning' subsumes both attitude change and attitude formation. Attitude change is a change in the particular quality of the evaluative response evoked by a stimulus as the result of new experiences related to that stimulus. It differs from attitude formation, in which the stimulus initially does not evoke an evaluative response but later does. Even though the terms belong to different traditions and literatures, both change and formation of an attitude can be seen as instances of evaluative learning, in that they both imply new learned evaluative responses to given objects.

* Corresponding author.
E-mail addresses: s.mattavelli3@campus.unimib.it (S. Mattavelli), juliette.richetin@unimib.it (J. Richetin), marcello.gallucci@unimib.it (M. Gallucci), marco.perugini@unimib.it (M. Perugini).

http://dx.doi.org/10.1016/j.jesp.2017.02.006
0022-1031/

Wegener, 1999). Evaluative conditioning (Hofmann, De Houwer, Perugini, Baeyens, & Crombez, 2010), which consists in the change in valence of a target object after its repeated presentation with a valenced stimulus, has been the predominant example of research on associative evaluative learning. Thus liking can result from the fact that the car has been paired with a celebrity in the ad.

Still through the less deliberate route, a newly identified associative learning mechanism, namely the Intersecting Regularities (IR) principle (Hughes, De Houwer, & Perugini, 2016) has been proposed as an alternative pathway to formation or change in objects evaluation. The IR principle underlies the Self-Referencing (SR) task, an evaluative learning task also characterized by its reliance on the self as the positive source. Hence, a SR effect is conceptualized as the result of a learning procedure where target stimuli are categorized through the same behavioral response as self-related stimuli (i.e., pressing the same key or moving a joystick in the same direction). In the following, we will first present the characteristics of the SR task and discuss its underlying learning mechanism and the advantages of using the self as an attitudinal source to induce both implicit and explicit evaluative and extra-evaluative changes. Second, through a meta-analysis on a substantial set including all studies conducted by our research group, as detailed later, we will provide a quantitative summary of the SR effect assessing the power of the effect as well as its homogeneity. Results from moderation analyses organize the discussion about the potential boundary conditions of the SR effect.

1.1. Learning to like through regularities

The pathways through which people can learn to like and dislike are various. The valence of an object can increase together with its familiarity (i.e., mere exposure effect, Zajonc, 1968). Moreover, evaluative conditioning (EC hereafter), probably the most known among the associative learning pathways, conceptualizes the change in valence of a stimulus due to a procedure that involves the repeated presentation of that stimulus (i.e., conditioned stimulus, CS) with a valenced stimulus (i.e., unconditioned stimulus, US) either in contingency of space and time or in a sequential manner, such that the presentation of one stimulus predicts the appearance of the other one (De Houwer, 2007; Hofmann et al., 2010).

Recently, Hughes et al. (2016) proposed that preference may also origin from more complex learning mechanisms and identified the intersecting regularities (IR) principle. To get a concrete idea of how the IR principle operates, let us consider the first experiment in Hughes et al. (2016). Participants performed a simple categorization task in which they used the same key (e.g., "F") when presented, with equal probability, a neutral brand name or positively valenced stimuli and a different key (e.g., "J") when presented another neutral brand name or negative valenced stimuli. The regularities (i.e., pressing key upon stimulus presentation) regarding the first neutral brand and positive stimuli thus intersect in terms of response as well as the ones regarding the second neutral brand and negative stimuli. In other words, an intersection was established through a common response between the valence and the neutral stimulus in either of the two sets of stimuli (neutral brand and positively valenced vs. alternative neutral brand and negatively valenced). The results demonstrated increased implicit and explicit liking towards the brand sharing the response with the positively valenced stimuli relative to the alternative brand. In other words and in line with the hypothesis, the establishment of intersecting regularities allowed for a transfer of the evaluative properties from the valenced source to the neutral target (see also Ebert, Steffens, Von Stülpnagel, & Jelenec, 2009 for another exemplification of learning via IR).

1.2. The Self-Referencing task

The Self-Referencing (SR) task, initially conceived as a peculiar case of EC (Prestwich, Perugini, Hurling, & Richetin, 2010), represents a prime example of an evaluative learning paradigm that relies on a specific operationalization of the IR principle, additionally characterized by the use of the self as a source (valenced) stimulus. The standard version of the SR task (Prestwich et al., 2010) consists of four blocks of 40 trials each. In the first two blocks participants categorize stimuli belonging to a Target A and words related to one source (i.e., the self) to one response key (e.g., 'E') and Target B stimuli and words relating to the contrast source (i.e., others) to a different response key (e.g., 'I'). Participants then repeat the two blocks of 40 trials switching the keys assigned to the categories (i.e. Target A and Self-words assigned to the 'I' key, and Target B and Other-words to the 'E' key). This is done to prevent any systematic pairing between keys and stimuli, hence keys do not acquire any specific evaluative meaning. In case of incorrect classification, a red-X appears on screen and remains until correction to emphasize the need to learn the correct intersecting regularities between pairs of stimulus categories throughout the whole task.[2] A SR effect from the SR task relies on the sharing of specific features between the two pairs of stimuli categories involved in the task. More specifically, there are four contingencies underlying the SR task. Two of them (i.e., "*if self-related, press the 'E' key*" and "*if first neutral stimulus, press the 'E' key*") intersect in terms of a shared response and outcome, as in both contingencies pressing the 'E' key is correct. Likewise, two other contingencies (i.e., "*if other-related, press the 'I' key*" and "*if second neutral stimulus, press the 'I' key*") also intersect insofar as they also share a response and outcome.

The first SR studies (Prestwich et al., 2010) used a control condition in which participants did not perform any task. However, this asymmetry could have raised doubts about the underlying mechanism of the SR effect (e.g., salience of the self). Therefore, the most used (and recommended) control condition of the SR task requires participants to perform an identical categorization task where the opposite source-target relationships are established via intersecting regularities. Specifically, the target categorized with the same key as the self in the experimental condition has to be categorized through the same key as 'other' in the control condition and vice-versa for the contrast target. This control task has been used in most of the targeted studies as it rules out any alternative explanation of the SR effect.[3]

Although the effect of the SR task might be interpreted as the joint consequence of both an intersection between one target and the self and between a contrast target and the category 'Other', a set of target studies has shown that that the SR effect is primarily driven by the common action required to categorize one target object and the self. Perugini, Zogmaister, Richetin, Prestwich, and Hurling (2013) showed in three studies that the category 'others' did not reveal any impact on the implicit attitude measures neither when examined in isolation (study 1) nor when defined positively by using the most positive idiosyncratically chosen exemplars of the category (study 2 and study 3).

Given the reliance on the IR principle, the effect from SR task is meant to be more likely if the individual learns that the two elements share the same response. A memory question administered after the SR task thus checks for individuals' ability to recollect the correct IR pairing resulting from the learning procedure at the level of the action (i.e., *"Throughout the task you pressed the same key to classify the self and one object. Do you remember which one?"*). Participants are classified as 1) correct IR memory if they indicate the correct target object, 2) incorrect, if they indicate the wrong target and 3) without IR memory if they opt for the 'I do not remember' option. This question is somehow

[2] A standard Inquisit version of the SR paradigm can be downloaded at https://www.dropbox.com/home/SR%20task.

[3] Another type of control task that rules out any confounding explanation of the SR effect has been used in Mattavelli, Avishai, Perugini, Richetin, and Sheeran (2017). In this study, participants assigned to the control condition categorized the same sources (i.e., self and others) and target stimuli as those categorized by participants in the experimental condition. Critically, the categorization of the stimuli was done through four different keys. Therefore, while identical in terms of the type of task performed and the stimuli used, this control task distinguishes from the SR task in that it is not based on intersecting regularities between source and target stimuli.