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An Analysis of the Role of Liking on the Memorial Response to Advertising

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Abstract: After the publication of the results of the Advertising Research Foundation's Copy Research Validity Project, advertisement (ad) liking has been extensively used as copy test predictor of campaign's performance. Less favourable findings have been recently presented on the basis of its delayed effects. This study addresses the question of the presence of carryover effects of ad liking on the recall, by modelling the patterns of recall, ad pressure and liking by means of the specification of a multivariate time-series model. While until now the literature has mainly investigated only the simultaneous relationship between advertising, recall and liking, this framework may be suitably applied to the investigation of the dynamic relation between ad liking and memorial response to advertising. The analysis is carried out for the markets of small automobiles, deodorants and shampoos. Main empirical findings for the analysed categories highlight that: (1) carryover effects of ad liking on the recall measures may be detected but not systematically and (2) the role of ad likeability on memorial responses varies among product categories. (3) Moreover a further finding shows that, whereas positive influences are thoroughly retrievable (in the small car category), ad likeability influences more advertising than brand awareness and more total than unaided awareness.

Key words: Advertising likeability, recall, VARX models

INTRODUCTION

Advertising is considered to influence consumer behaviour on a number of levels, cognitive-affective-conative, either in sequential order (Lavidge and Steiner, 1961) or not (Heath and Feldwick, 2008 and the references therein). The present study focuses on the two major intermediate advertising effects, cognition and affect and aims at analysing the way the advertising influences memorial response by means of the emotions. This is obtained by modelling the dynamic relation of recall with advertising liking, which measures how much the consumers like or dislike the commercials, by means of the specification of vector auto regressive models, with advertising pressures acting as exogenous variables (VARX). New insights may be drawn on the relationship which has never been investigated in this framework. Afterwards a synthesis of evidences on the brands is performed.

In particular the main questions the study addresses are:

- **Q1:** Does a significant role of ad liking on the memorial response to advertising exist?
- **Q2:** Which role does ad liking play on the memorial response?
- **Q3:** Do the effects entail the whole or a part of the cognitive awareness?

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RESEARCH ON ADVERTISING LIKEABILITY AND
RECALL RELATIONSHIP

In earlier studies on advertising it was established that the thinking dimension of individual's response and the feeling dimension are the two major intermediate effects of commercials (Vakratsas and Ambler, 1999). To evaluate the advertising effectiveness on the thinking dimension, recall is one of the primary measures supported by an extensive research demonstrating its validity in predicting future market performance. Recall works efficiently when central information processes are generated, while its contribute is debated if peripheral information processing acts (Hansen, 2004). In this context, positive and significant effects of advertising on emotional responses are detected, which in turn may or may not influence consumers implicitly or explicitly throughout information processing itself. The feeling response may be captured by ad liking, which is an overall reaction to the commercial reflecting attitudes and emotions mediating the message effects. Of course ad liking does not contain the whole hidden emotional power that advertising undoubtedly has, but both it constitutes a quite available measurable indicator linked to the amount of emotion flowing through an ad message and it has been proved to measure the same construct as the multiple-items advertising attitude does (Brown and Stayman, 1992). The likeability has been hypothesised to act in many ways (Biel and Bridgwater, 1990): among others, as commercial liking increases, consumers are supposed to get better exposures, give more mental processing, engender trust and transfer affect to the advertised brand.

On ad liking and recall relationship there is some literature; it mainly originates from the 1990 ARF copy research validity project (Haley and Baldinger, 1991) which emphasized liking as strong predictor of sales and from the pioneering study on the more general construct attitude toward the ad (Madden *et al.*, 1988) as mediator of consumer response. Significant positive correlations between liking and recall were detected into the copy testing framework (Haley and Baldinger, 1991; Walker and Dubitsky, 1994) and this correlation is found to vary significantly among product categories classified as approach/avoidance/utilitarian (Youn *et al.*, 2001). On the opposite side, researchers achieved a strong negative correlation between recall and liking, which instead shows a high positive correlation with attention and purchase intent.

As a whole, it is interesting to note that empirical evidences regarding memories and ad liking are usually considered contemporary by simultaneous correlations, so that the important part of the effect of advertisements, which is the memory delayed one, has been not taken into account by these research procedures. Only recently, delayed effects of ad likeability have been considered (Bergkvist and Rossiter, 2008): responses to advertising for the same individuals (students) in a quasi-experimental context of simulated campaigns are tracked in two times circumstances, the former immediately after exposure and the second after a delay during which the advertising campaign works. In the Bergkvist and Rossiter (2008) contribute relationships between four multiple-items constructs -likeability, brand belief, attitude toward the brand and brand purchase intention - are analysed using multivariate path analysis with the conclusion that ad likeability in pre-test fails to predict brand attitude after the campaign.

The present study aimes at investigating ad liking delayed effects, as in Bergkvist and Rossiter (2008) but here a completely different approach, based on a pure dynamic framework, is exploited by means of the specification of VARX on time series of campaign tracking measures. The purpose is answering the question of how liking mediate carryover effects of advertising on recall variables; at the same time the study provides the

practitioners a methodology to directly measure likeability ex post effectiveness on each memorial response. Multiple times series models, such the VARX, have been often applied in marketing literature to capture dynamic relationships between marketing mix variables and performance (Dekimpe and Hanssens, 1995a, b, 2000; Freo, 2005; Nijs *et al.*, 2001; Srinivasan *et al.*, 2000). Within this framework the long term effects of advertising on sales have been proved in many contributes. Notwithstanding the relationship between the different cognitive and affective facets of response to advertising has never been explored along these lines, which is exactly the focus of this study.

The use of these models compared to the experimental research by Bergkvist and Rossiter (2008) has the advantage to employ longer objective secondary data and, compared to the many previous simultaneous correlations, to follow advertising carryover effects, that is to produce ex-post effectiveness measures in order to complete the ex-ante ones obtained by copy tests. Moreover, the relation between liking and recall is investigated for three different product categories which are paradigmatic of approach versus avoidance. Approach products are the ones that most consumers enjoy using, like good food, new cars, entertainment; for these products the relationship between liking and recall is expected to be positive. Avoidance products are the ones that most consumers would not purchase unless they helped the user to avoid something unpleasant consequence, like medicines, deodorants, insurance policies and the liking-recall relationship may be absent or even reverse (Wells, 1986).

DATA AND METHODOLOGY

The relationship between recall and ad liking is investigated, in the Italian market, for three quite different categories of goods (small automobiles, deodorants and shampoos). The small automobiles are approach products requiring high information process; in this category all media are exploited by manufacturers for many weeks a year. The avoidance products categories, deodorants and shampoos, are personal care packaged goods for which television is the strongly predominant advertising media.

Advertising tracking data of product brands of the three above mentioned categories are composed on a weekly basis for the year 2006 from the two Italian commercial advertising tracking monitors GFK-Eurisko and Nielsen Media Research. Relating to advertising pressure, Gross Rating Points (GRPs) which measure the sum of percentages of the target audience reached by advertisements during a given period and ad investments are monitored, while the most used memorial and liking indicators in commercial setting every week are collected through personal interviews over a sample of 250 respondents, representative of Italian population older than 14 years. Particularly for each brand, as regard memorial responses, top of the mind, unaided awareness, total awareness (unaided plus aided), unaided advertising awareness and total advertising awareness (unaided plus aided) are considered. The ad likeability is measured with reference to all respondents who recalled brand ads, for all the brands with at least 2% of unaided advertising awareness. More specifically the respondents were asked if they like or dislike the advertising recalled for the specified brand in a five-points Likert scale.

The analysed data are derived from intersecting the two previous sources of data and entail for the small car category the 8 brands with most recalled ads, which attracted just less than one half of the total advertising investment of the category in 2006 and for both deodorants and shampoos the 6 brands with most recalled ads, which represent about 90% of the category ad investment (Table 1).

Table 1: Product categories

Product category	No. of brands	Ad investments % of category in Italy
Small cars	8	48.5
Deodorants	6	94.2
Shampoos	6	87.1

Many VARX models are specified to explore the pattern of relationships between recall, liking and ad pressure; each specification originates from different combinations of recall-ad liking-ad pressure variables. Memorial response is analysed in the five available variables to distinguish the heterogeneous impact in terms of recall or recognition and brand or advertising awareness. Ad likeability is specified in terms of top-two-points ratings (percent answering like very much or like somewhat) or, to detect an effect of disliking too, extreme degrees of liking (percent answering like very much or like somewhat or like not at all); total GRPs and television GRPs are chosen as ad pressure indicators.

In the first step graphics inspection and univariate unit root tests do not reject stationarity of the series; moreover for the one year time span of the dataset it seems reasonable to assume ad pressure (a_t) as an exogenous variable. Then, for each combination of variables, a Vector AutoRegressive model is specified, jointly for recall (r_t) and ad liking (l_t) series. Thus, posing $Y_t = (r_t, l_t)'$, the specification is:

$$C(L)Y_t = \Phi d_t + \varepsilon_t \tag{1}$$

where, $C(L) = I_2 - C_1 L - \cdots - C_p L^P$ is the matrix polynomial in the lag operator L, $\mathbf{C}_j$, $j = 1, \ldots, p$ are 2×2 parameters matrices, d_t is the $s \times 1$ vector of the deterministic components (constant and exogenous), Φ is the $2 \times s$ matrix of the deterministic components' parameters, while ε_t is a white noise vector ($VWN(0, \Sigma)$) and we assume that $|C(L)| \neq 0$ for $|L| \leq 1$ (i.e., stationarity condition).

So far, every VARX model describes a joint generation process of the endogenous variables, both recall and liking, which are supposed to be determined within the system and influenced by the exogenous advertising pressure. For each VARX, as brand product and recall-liking-ad pressure measures combination changes, the lag order is set basing on the Schwarz criterion.

In order to investigate the liking recall relationship, this setting enables to identify if liking causes recall, by testing the null hypothesis that liking does not Granger-cause recall (Granger, 1969) where, a variable x is said to Granger cause another variable y if future values of y can be predicted better using past values of x and y than by using past values of y alone. In summary, ad liking is intended to cause recall if it improves the prediction of or anticipates the recall itself. Moreover the VARX approach permits to measure the response of recall to an impulse arising from liking some time before, describing the dynamic pattern of the relationship. Impulse response functions for stationary VAR are derived by the structural estimations of the Vector Moving Average representation (Amisano and Giannini, 1997; Lutkepohl, 2005).

RESULTS

In the empirical analysis, for each product brand in the three categories (8 for automobiles, 6 for deodorants and 6 for shampoos) twenty specifications have been estimated by combining the five recall, two liking and two ad pressure measures. The analysis of each of these models provides some useful hints and practical managerial implications to answer the question on the effectiveness of single commercial campaigns and the way the messages act.

Table 2: Results of Granger test of no causation of liking to recall. Number of tests with p-values lower than 0.05 or 0.10 by product category and brand

Models	p-value	
	≤0.05	≤0.10
Small cars		
Ca-A	4	4
Ca-B	4	4
Ca-C	4	6
Ca-D	4	6
Ca-E	5	7
Ca-F	1	2
Ca-G	2	6
Ca-H	0	0
Total	24	35
Total (%)	15.0	21.9
Deodorants		
De-A	2	3
De-B	5	7
De-C	4	12
De-D	7	8
De-E	10	11
De-F	0	0
Total	28	41
Total (%)	23.3	34.2
Shampoos		
Sh-A	0	3
Sh-B	9	9
Sh-C	4	4
Sh-D	0	0
Sh-E	0	1
Sh-F	2	2
Total	15	19
Total (%)	12.5	15.8

On each of these models (160 for small car category, 120 for shampoo and 120 for deodorant ones) Granger causality tests have been run. In Table 2, the number of rejections of the no causation hypothesis with 90% and 95% confidence levels are shown by product category and brand. As a general result the null hypothesis that liking does not cause recall is rejected with 90% of confidence for the 34.2% of the models in the deodorant category, the 21.9% in the small car category and the 15.8% in the shampoo one.

The finding is quite interesting since positive values for the proportion mean that at least some combinations of measures or some situations exist in which ad liking has a significant impact on the dynamic response pattern of recall, whereas likeability dynamic effectiveness has been little investigated and even less assessed. It is worthy to note that what is relevant here is not the proportion of positive findings but the positive value of the proportion itself. In fact this is not to be intended as a measure of success since, it is built not on a representative sample of observations or products but on the set of combinations of the available recall -ad pressure -ad liking measures.

In general, an impulse on liking does not guarantee an effect on recall, notwithstanding this may happen in some circumstances with high heterogeneity between and within the categories and it is worthy to know which type of effect has the liking on the recall and in which conditions.

Delayed effects on the memorial responses are traced by the cumulated responses up to the tenth week to an impulse arising from the liking at week 0 and presented by brand in the box plots of Fig. 1a-c. Impulse response functions are derived by the structural
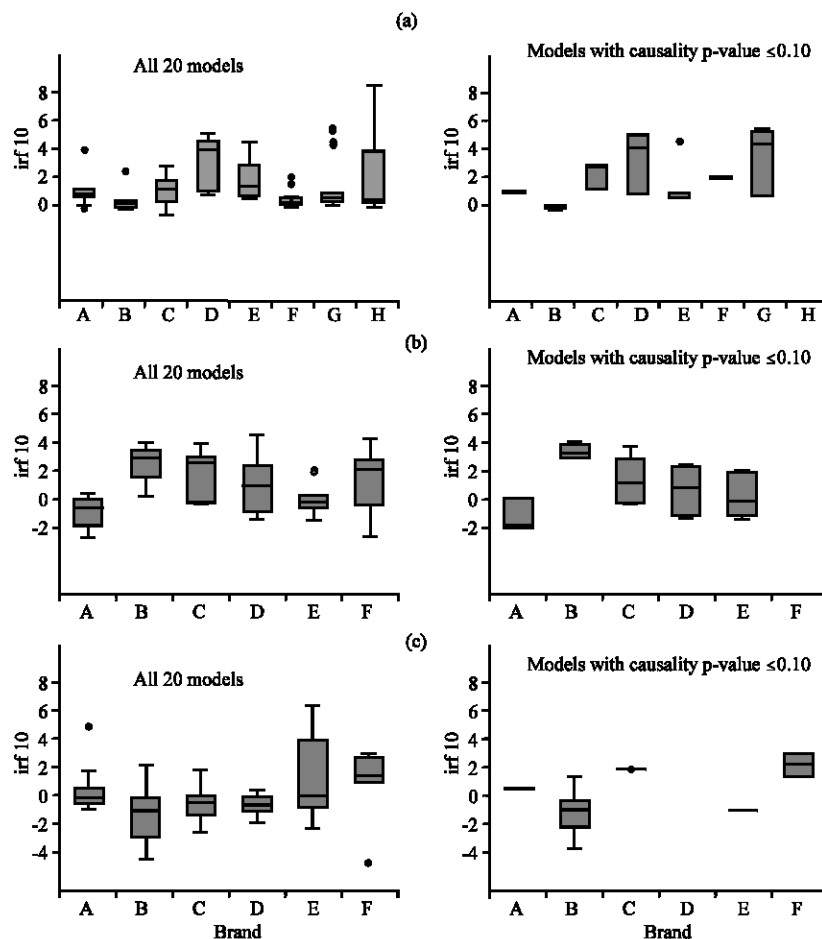
Fig. 1: Cumulated responses (at week +10) of recall to 1 ad liking point impulse by product category and brand. (a) small cars, (b) deodorants and (c) shampoos

estimations of the Vector Moving Average representation where restrictions to zero of long run responses of ad liking to recall have been imposed. Cumulated impulse responses are obtained by summing up the simple impulse responses of recall to ad liking over ten weeks.

A large extent of heterogeneity between and within the categories and the brands is found in this framework too. In the automobile category cumulated responses are positive, except for brand B, considering either all the models or only the significant ones. Otherwise, in the deodorants and shampoos categories the cumulated responses are more often zero and sometimes negative.

The positive responses of recall to liking for small automobiles both confirm a positive expected relationship between liking and recall for an approach product and extend to delayed time the evidence of the empirical literature based on simultaneous correlations performed in copy tests. The findings on zero and negative delayed effects for avoidance products like deodorants and shampoos are even more innovative; in fact at empirical level, from previous instantaneous correlations-based evidences, only the absence of effects was retrieved (Youn *et al.*, 2001), whilst absent or negative effects were expected by a priori theoretical considerations (Wells, 1986).

Table 3: Results of regression models by category

Response variable	Cars	Deodorants	Shampoos
Cumulated IRF of ad liking to recall			
Advertising awareness measures dummy	1.688** (0.247)	0.617* (0.346)	0.263 (0.420)
Total awareness measures dummy	0.820** (0.247)	-1.026** (0.346)	-0.231 (0.420)
Constant	0.502** (0.175)	1.234** (0.244)	-0.002 (0.297)
R^2	0.299	0.082	0.005
Adjusted R^2	0.290	0.067	0.000
Number of observations (N)	160	120	120
F(2,N-3)	33.53	5.26	0.30
Prob > F	0.000	0.006	0.740
RMSE	1.510	1.829	2.225

**Significant at 95%; *Significant at 90%; (SE in brackets)

As general finding spending to improve ad likeability within the car category is assessed to be fruitful, whilst within the other two product categories investment in ad quality may be useless or even counterproductive. Obviously, all this happens with high heterogeneity at brand level and liking effectiveness depends on the brand and may interest different types of recall. At brand level heterogeneity is confirmed by the presence of some positive outliers for some products which signal particularly effective combinations of recall-ad pressure-ad liking. That is, positive outliers allow to identify, for the specific product, which ad likeability influenced which recall by means of which ad pressure strategy.

To obtain generalizations beyond the individual brand results, we perform a synthesis across the models within each of the three categories, with the aim of explaining the main feature of recall and ad liking relation. To this purpose, for each category, a regression model is estimated with the rationale to retrieve the measures better explaining the influence of liking on the recall. Cumulated responses at the tenth week are regressed as dependent variables on two dummies (Table 3), the former indicating if the specific cumulated impulse response entails an advertising (instead of a brand) recall measure, the second if it entails a total (instead of an unaided) recall measure. For the small car category a very high part, about one third, of the variability of impulse responses of recall to ad liking is explained by the recall measures. The impulse responses of recall to liking increase when advertising awareness or recognition are involved. In the other categories only a residual part of the variability of impulse responses is explained by the previous factors.

Of course, for all the categories, the most of impulse responses variability is not, neither was expected to be, explained by measures of memorial response but rather by other environmental factors that might reflect differences in strength of category competition, brand life cycle, marketing mix and especially by idiosyncratic campaigns characteristics.

DISCUSSION

Since the early 1990's ad likeability has been widely used by practitioners as copy-test measure to accept or reject advertising for campaigns. Recently, it has been questioned as diagnostic measure because it failed to predict post-campaign brand communication effects. This study may contribute to the literature since it emphasises a different aspect by analysing the relation between liking and recall within a pure dynamic setting. The study presents a two fold findings. First of all, it originally provides a methodology to assess ad likeability ex post effectiveness on recall. In fact, overcoming the usual limitations of measures based on immediately following exposure to the ad, the proposed method enables delayed measurements of ad likeability effects.

Then, major key findings are presented, answering the Introductions' questions.

Q1: Does a Significant Role of Ad Liking on the Memorial Response to Advertising Exist?

For the analysed categories, the empirical evidence does not deny support to the hypothesis that ad likeability significantly anticipates recall. There are detectable situations in which liking and recall appear linked by a causal relationship in a dynamic setting and the strength of relation varies among categories and brands.

Q2: Which Role Does Ad Liking Play on the Memorial Response?

The product category is a moderator of the way the relationship develops and the role the ad liking acts, which is positive for the approach product small car and positive or zero and also negative for the avoidance products deodorants and shampoos. High heterogeneity in responses within the categories is retrievable.

Q3: Does the Ad Liking Effect Entail the Whole or a Part of the Cognitive Awareness?

For the approach product automobile the ad likeability influences more advertising than brand awareness and more recognition than unaided recall. No significant differences are detected for the two other categories.

In summary, carryover effects of ad liking on the memorial responses are detected, but not systematically. The effects strongly vary among product categories classified as approach or avoidance. Positive effects are thoroughly retrieved only in the approach category small car, but in this category there is a significant evidence that they involve the less noble awareness measures, advertising rather than brand and total rather than unaided recalls. Altogether, the role of ad likeability on the recall is not null neither favourable as in most previous literature.

For the practitioners the main implication is that investment in quality of ad messages may be - but not necessarily - effective and profitable. Moreover, the proposed methodology seems a suitable instrument to evaluate the effectiveness of ad campaigns, in order to rely not only on copy tests but also on ex post assessment of the dynamic effects of ad likeability on cognitive response.

Of course, there remain several important areas for future research: first, since relationships between ad likeability and recall vary sharply by product, to study other products and categories will make conclusions more generalizable. Second, to investigate the psychological relationship between liking and recall as latent constructs rather than directly measured variables, it will be interesting to specify structural equations or state space models.

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