

REMEMBERING ATTACK ADS: An Experimental Investigation of Radio

John G. Geer and James H. Geer

This article seeks to advance our understanding of the influence of attack advertising on the public in two ways. First, we examine whether the content of individuals' memory differs when exposed to positive or attack ads. Critics of attack advertising fear that "negativity" has pernicious effects on the citizenry, ranging from lessening people's faith in the political process to decreasing people's willingness to participate in elections. This article extends this general line of inquiry. How do attacks affect memory? Do they lead people to remember more things about the ads? Do they affect the accuracy of people's memories? Questions about memory are important from an information processing perspective, since the stored information is used to guide and shape behavior. We find that subjects' recall as many things about positive ads as attack ads. However, when taking a closer look at what they recall, it turns out that attack ads yield many more inaccurate memories than do positive ads. We discuss the implications of these findings. The second way this research advances the field is that we employ an experimental design that uses radio ads as our stimulus. Nearly all the work in this field has focused on television. Yet radio serves as an invaluable way for candidates to communicate with voters, especially in nonpresidential elections. We are a multimedia society, and we need to broaden our knowledge of the impact of political ads beyond television, especially if we want to forge a better understanding of how advertising works in state and local elections.

Key words: political advertising; negativity; memory; attack politics; radio; experiments.

Over the last few years, scholars have been debating whether attack advertising discourages voters from participating in elections. This debate has centered on the so-called "demobilization hypothesis," which posits that negativity in campaigns leads to lower rates of voting by turning off citizens from the electoral process. The origins of this hypothesis can be traced to Ansolabe-

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here, Iyengar, and colleagues' (Ansolabehere and Iyengar, 1995; Ansolabehere, Iyengar, and Simon, 1999; Ansolabehere, Iyengar, Simon, and Valentino, 1994) research that showed that exposure to attack ads decreased people's willingness to turn out to vote. Their claims had appeal, especially among pundits and political observers. The reasons are easy to see. There had been an apparent 30-year decline in voter turnout, and the frequency of attacks was on the rise during that same period (Finkel and Geer, 1998). The argument seemed more than credible. But despite the initial appeal of the hypothesis, scholars began to question it on a number of fronts (Clinton and Lipinski, 2003; Finkel and Geer, 1998; Freedman and Goldstein, 1999; Garand and Graddy, 2001; Geer and Lau, 2001; Kahn and Kenney, 1999; Jamieson, 2000; Lau and Pomper, 2001; Lau, Seligman, Heldman, and Babbitt, 1999; Lawton and Freedman, 2001). The weight of the evidence now suggests that attack ads do not demobilize the electorate. Lau et al.'s meta-analysis best illustrates the claim that most work in the field does not support the demobilization hypothesis.

Regardless of how one evaluates the current status of the demobilization debate, important questions remain in sorting out and understanding the effects of attack ads on the political process. For example, we should assess more fully the conceptual underpinnings of such terms as "negativity," how attacks may affect who wins and loses the election, and whether attacks mislead and misinform voters. In short, we need to move beyond the demobilization hypothesis. This article seeks to be part of that effort. In particular, we examine whether exposure to positive or attack ads influences the content of individuals' memories about the spots. Critics of attack ads fear that negativity misleads and misinforms the public (Buchanan, 1996, 2000). If so, then we might expect the tone of advertisements to alter the memories of citizens. Memory is of interest because, in its broadest conceptualization, it provides information that guides and directs behavior. Scholars have long argued that memory is critical in understanding the causal mechanisms driving behavior (Druckman and Lupia, 2000; Matlin, 2002).¹ Thus, by forging an understanding of the potential effects that attack ads have on memory, we hope to advance this debate over the consequences of attack politics in electoral campaigns.²

To undertake this investigation, we employ an experimental design that makes use of radio ads as opposed to spots aired on television. Television ads have drawn nearly all the scholarly attention.³ That focus is understandable for studies of presidential elections, given the importance of television in these nationwide contests (West, 2001). But for state and local elections, television often does not work as well, making radio an important medium of communication. Television advertising, for example, does not make sense in many congressional districts, since it is an expensive medium that often fits poorly with

the contours of a district (Jacobson, 2000). As a result, congressional candidates make extensive use of radio as a way to reach the public. Herrnson (2000, p. 210) reports that “radio is an extremely popular medium for congressional campaign communication,” noting that “90 percent of all house candidates and virtually every senate contestant purchase radio ads.” The importance of radio will even be greater for state legislative races, where the districts are usually smaller and there are far fewer dollars with which to purchase advertising time.⁴

Radio also deserves closer study since its importance in American elections is likely to rise. Radio has the ability to allow “candidates to target voters with greater precision” (Herrnson, 2000, p. 211). Just consider that there are, for instance, African-American, Hispanic, and Christian radio stations that provide an effective way to make appeals to key blocks of voters.⁵ And given that both parties remain in a pitched battle for the control of government, any technique that allows them to target important sets of voters will only draw increasing attention in the coming years.

TOWARDS AN UNDERSTANDING OF MEMORY

It is clear (Massaro and Cowan, 1993) that the vast majority of current research in experimental psychology uses the Information Processing Approach (IPA) as its general model. This approach, while not widely utilized in political science, is recognized as being relevant to political phenomena (Iyengar and McGuire, 1993; Kuklinski, 2002; Kuklinski and Hurley, 1994; Lau, 1985; Lodge and Hamill, 1986; Lodge and McGraw, 1995; Lodge, McGraw, and Stroh, 1989; Lodge and Taber, 2000; Lupia, McCubbins, and Popkin, 2000; McGraw, Lodge, and Jones, 2001; Valentino, 1999). The IPA views the individual as a processor of information. The plethora of information to which an individual is exposed, which includes both environmental input and feedback from within the system, is selected from, often through attentional mechanisms, for admission into the system for further processing. Through the process of encoding, some of the information is then placed into memory or storage. Then, when called on, the stored information is retrieved and available for use in helping to guide and direct behavior. The model assumes a linear progression of subprocesses with feedback between and among them. In this general formulation, selective attention, errors in storage, effects of previously stored information, and retrieval errors all provide the opportunity for memory to contain inaccuracies.

The implications for this article are that when an individual is exposed to a political ad, what is recalled about that ad may or may not be an accurate representation of the its content. Furthermore, what is recalled, whether accurate or not, provides the foundation upon which decisions are made and be-

havior activated. This would, of course include voting behavior and other phenomena of interest to the students and observers of politics.

Our selection of recall to assess memory rather than the use of recognition is based on the idea that the former allows for the full range of subject's memory to be expressed. In recognition tests, there is the ever-present concern that material in memory is not included in the recognition alternatives and thus is overlooked. Recognition tests also may inflate the rate of accuracy due to successful guessing. Even so, both formats have the potential to yield important findings. Our judgment was that in a study that begins the exploration of a topic, we should use a technique that optimizes the likelihood of identifying the full range of potential responses.

Our particular interest in memory errors has a long history in psychology.⁶ However, as Roediger (1996) points out, it is only lately that errors have "played a central role in research and theory about human memory." George Miller (1956) suggested that memory should not be conceived of as a collection of information that faithfully represented what was presented to the individual. He argued:

When you witness a scene or hear a story that you want to remember, you try to translate it 'into your own words,' into the linguistic units that will fit your own cognitive hierarchy. This highly schematic, verbalized abbreviation is remembered. Then when you try to recall you must decode. Since the fit of the words to experience is seldom as tight as the fit of laws to data, the decoding process often goes astray. You supply details by secondary elaborations that are consistent with your coded memory. Often these details are wrong. (p. 132)

Further, Roediger noted: "Other research also shows that information implied, but not actually stated, is often remembered as if it had actually occurred (Brewer, 1977; Harris, 1974)."

We hypothesize that the presentation of political information on one topic may trigger associations on other related topics that are not actually mentioned. Lodge, McGraw, and Stroh (1989), for example, contend that a useful way to think about this cluster of information is to think of them as "packets"—or as schema. The concept of schema, which dates back to Bartlett (1932), is commonly used to describe the grouping or clustering of information within memory.⁷ While the present research does not test schema theory, this perspective offers a conceptual base from which one would expect memory errors. Within schema theory, the notion of spreading activation from one concept to other related concepts was first suggested by Collins and Loftus (1975). As an additional example of spreading activation within a schema, we point to Anderson's (1983) memory model ACT that described networks and spreading activation. So, using the general network model, we argue that when

an individual is exposed to an ad that describes positive or negative information, other information associated with that material may also be activated. When asked to recall the political ad, these associates might well be recalled as having been present, even though they were not in the stimulus material.

We examined our data to see if attack ads in fact produce different memory effects than positive ads.⁸ Our findings are simple, but telling. Participants in this study recall just as many things (what we shall call “memory units”) about the content of positive ads as they do the negative ads. Hence, it appears that attack ads stimulate voter recall at the same rates as do positive spots—a finding that suggests attack ads do not turn off people more than positive ads. However, what our subjects recalled about the attack ads was far more likely to be in *error*. That is, participants’ recall protocols contained more incorrect negative memory units than incorrect positive memory units. Now, we want to be clear about what we mean a memory error. Information that is reported by participants as having been in the ad when indeed it was not present is treated as a memory error (or what we will call an “intrusion”). It is, therefore, possible that the information recalled may be accurate in general, but not as it applies to the content of the ad. This distinction is important and will draw attention in the conclusion.

These results have potentially important implications for political learning and speak to issues about the merits of attack ads, topics that we shall address in the conclusion. The remainder of this article is divided into four sections. First, we present the experimental design used to collect our data. Second, we discuss how we measured accuracy in memory recall of subjects. Third, we describe our results. Finally, we offer a few conclusions and directions for future work.

EXPERIMENTAL DESIGN

Our experiment had four conditions: attack Republican ads, positive Republican ads, attack Democratic ads, and positive Democratic ads. In each case, the actual issues raised and their wording was the same across all ads. The spots mentioned crime, education, Social Security, and taxes (see Appendix A). We ran party ads as opposed to candidate ads for three reasons. First, our data were collected in the spring of 2001, when few candidates were formally running for public office. Second, since most people have a partisan identification, memory about our ads could play off these widely held schemas. If we had used local candidates, for example, a large number of our respondents might not possess any information about them. Third, political parties do invest a lot of money and time promoting their own causes via paid advertising, so we are assessing a question of obvious importance.

In an effort to make sure our manipulation was sound, we undertook a

number of precautions. First, we ran copies of our ads by a local political consultant to see if they were realistic. He indicated that the spots were plausible representations of the kind of ads one might hear run during an election, which gives us greater confidence in the generalizability of our results. Second, we asked students from one of the author's university to rate how negative and how positive were each of the simulated ads. We wanted to make sure that our ads captured accurately the variables of interest. The undergraduates' ratings of the ads squared nicely with our judgments of them. In other words, students viewed our "attack" ads as attacks and viewed our "positive" ads as positive. This verification increased our confidence in the manipulation. Even so, we took one further step. Rather than just running one kind of negative or positive spot for each party, we constructed two parallel forms of each ad to avoid resting our conclusions on a single version of the spot. Copies of all ads used in our experiment are available on request (see Appendix A for two samples).⁹

Experiments, obviously, have the advantage of providing greater levels of control, which permits cleaner tests of key hypotheses. When studying the various effects of the mass media on the public, this asset is particularly important in light of the many problems associated with self-reports of media exposure (Price and Zaller, 1993).

Radio ads, our particular manipulation, have an additional advantage of being able to control with great precision the content and characteristics of the material presented to our subjects. By presenting the information only verbally, we avoid the complications associated with visual images. Not only would it be tricky to create realistic audiovisual ads, it would be difficult to ensure all ads were equivalent. Of course, our focus on radio limits the generalizability of these results to other mediums, especially visually oriented ones like television. But given the centrality of radio in political campaigns (Herrnson, 2000), we view this focus as an asset of the research.

Participants

Participants were 29 male and 92 female undergraduate students at a large southern state university.¹⁰ Nearly 20 percent of the students were minority, providing some diversity for our sample. The subjects were enrolled in psychology classes in the spring 2001 semester and were participating in research in order to obtain extra credit in those classes.

Methods

Subjects signed up for our study, agreeing to come to the research lab for the experiment. When they arrived, a research assistant described all proce-

dures used in the study.¹¹ Each participant was then asked if they wished to participate. No one declined. The participant then signed an informed consent form that briefly restated the procedures to be followed in the study. After signing the form, the participant was taken into the next room where data were collected.

Each subject was randomly assigned to one of the four experimental conditions. Therefore, approximately one quarter of the participants heard an attack ad from the Democrats, another quarter listened to a positive spot from the Republicans, and so on. Within that randomization, we also varied the version of each type of ad. Recall that in order to reduce the likelihood that one specific ad might produce unusual effects, we created two examples of each of the four types of radio spots. Thus, there was a total of eight conditions in the experiment.

After agreeing to participate and signing the informed consent form, participants were seated in the laboratory. When they indicated being ready, they listened to a high quality tape-recorded political ad. Ad content varied as described previously. Immediately following the playing of the ad the participant was given a passage from a university catalog to read. The passage was neutral in content and contained no reference to political material. Research assistants monitored the reading of this material to assure participant's compliance. This procedure lasted for 5 minutes. Our goal was to prevent participants from rehearsing the ad's content in anticipation of being asked questions concerning the ad.

It is important to note that each subject listened to the ad in isolation. This procedure, while time consuming, mirrored more closely the real world conditions in which people typically listen to the radio. The most common way people listen to radio is in their cars, which is usually (90%) done alone (Schulberg, 1996).¹² Given that the average commute to school or to work, according to 1990 census data, is 25 minutes, a substantial part of people's days are spent listening to the radio in isolation.¹³ Of course, many people also listen to radio at home. But again, the evidence suggests that this activity is also done alone (Schulberg, 1996, p. 2). In short, listening to the radio is frequently done in isolation, strengthening the external validity of our design.¹⁴ Laboratory settings do have many artificial aspects. But our more time-consuming procedure makes this criticism less telling, especially by comparison to having subjects listen to the ad in a group setting.

After reading the distracting neutral material, all participants were instructed to provide a written recall of the material in the political ad. They were told to write their answers as close to verbatim as possible. Via verbal instructions they were encouraged to write the gist of the material if they could not provide a verbatim record. Appendix B contains a copy of the memory questionnaire that was given to all participants. When the memory ques-

tionnaire was completed, all participants were given additional questions that asked about their political views (Appendix B). We included “filler” questions in the second questionnaire in an effort to disguise the nature of the study.

When the participants completed questionnaires, each was asked if they had any questions. After any questions were answered, the participant was credited for participating and then dismissed from the experiment. The total time required for participation was approximately 30 minutes.

MEASURING MEMORY

Using the criterion established by Pritchert and Anderson (1977), the ads were divided into “idea units.” Idea units are defined as meaningful divisions in the ads. That is, each ad was examined and the text was parsed into segments that contained an identifiable unit of meaning.¹⁵ Since the attack and positive ads were constructed to contain identical amounts of information, the number of idea units was the same for the two types of ads. This procedure assured that differences in memory were not the result of variance in the number of idea units presented to the subjects.

As in the case of the original ads, we broke up the recall protocols into idea units. These parsed recall protocols were then inspected and each recall idea unit was assigned the label correct or intrusion. A correct memory unit was the presence in the recall protocol of an idea unit that had been present in the ad. An intrusion occurs when an idea unit in the recall protocol is produced by the subject but had not been present in the ad. A gist criterion was used to estimate whether the gist of the idea unit was present (Pritchert and Anderson, 1977). In other words, for a unit to be scored as correct, the subject did not have to recall exact wordings but did have to produce the basic meaning. After the correct versus intrusion decision was made, the unit was assigned to one of three content values. The unit was identified as either neutral in content, attack in content, or positive in content. This yielded six categories to which all recall idea units could be assigned.

Two research assistants independently judged each participant’s memory protocol. In instances where the original coders disagreed, a third independent judge read the protocol and scored it. The three judges then discussed the unit in question and selected an agreed-upon category. There were no instances in which complete agreement among scorers was not obtained. The first two coders agreed 83 percent of the time about the accuracy of the memory, which is a more than acceptable rate of inter-rater reliability. In the limited instances where disagreement initially took place, the conference with the third coder resolved the issue to all raters’ satisfaction. Following the scor-

ing of recall protocols, each participant had six scores that reflected the number of idea units in each of the six categories.

MEMORY RESULTS

We conducted a preliminary analysis to determine if it was possible to simplify our results. Recall that we had separate conditions for Democratic and Republican ads. While we saw little reason to anticipate partisan differences, it was essential to control for this possibility rather than just assume it would not be an issue.¹⁶ The data revealed that the party sponsorship of the ad did not affect the recalled memory of our subjects.¹⁷ This finding allows us to simplify our analyses by dropping party sponsorship as a variable in our examination of the memory data.¹⁸ An important payoff of this simplification was an increased sample size across the four collapsed conditions, which permits greater statistical precision in our tests of significance. In sum, our overall analysis, to be described below, now involves a 3-factor mixed-model ANOVA.

Our analyses focus on three principle variables: (a) Ad Type (Attack or Positive, a between subject variable), (b) Memory Type (Correct or Intrusion, a within-subjects variable), and (c) Memory Content (Positive, Neutral, Negative, a within-subjects variable). As noted, we created the number of memory units, our key dependent variable, through the scoring of recall protocols. That is, each subject, as mentioned previously, received six separate scores. Those scores for each participant were the number of memory units in each of our six categories.¹⁹ These six scores were then identified as being positive, negative, or neutral in content and assigned to the category of either correct or incorrect. It is quite likely that there is a correlation between some of these six measures. We, therefore, used a General Linear Model (GLM) repeated measures approach to analyze the data. An advantage of this procedure is that we can test for the violation of the independence assumption of repeated measures and provide appropriate corrections. This approach increases our confidence in the accuracy of our statistical analyses. When significant violations of sphericity are identified, we present the Greenhouse-Geisser Correction (GGC). GGC adjusts statistical tests to account for this problem.²⁰ We also present the eta-squared statistic, which describes the proportion of the variation explained by our independent variable.

We begin our description of the data analysis by reporting the significant effects in the overall repeated measures analysis (see notes for the specific details on relevant statistical tests). Among the main effects, the only one that came close to normal significance tests was Memory Type. When collapsed across all conditions there were more correct idea units ($M = 1.49$) than intrusions ($M = 1.04$).²¹ However, there were no significant differences for the main

effects of Ad Type or Memory Content.²² The finding that Ad Type did not, overall, yield a significant effect indicates that attack ads do not lead subjects to recall more information than for positive ads.²³ Similarly, there were no overall differences between the number of positive, attack, or neutral units recalled.

The first two-way interaction we consider is between Ad Type and Memory Content. Figure 1 contains the relevant means.²⁴ In this analysis, we collapsed the data across Memory Type to sum correct units and intrusions together. As one can readily observe, participants' memories strongly (and significantly) reflect the content of the ad they heard. Negative memories occur with attack ads and positive memories occur with positive ads. Neutral content appears unaffected by Ad Type.

While no one should be surprised that negative information triggers negative memories, these results serve as a valuable manipulation check, verifying that our ads apparently contained the type of content we sought. So, while we do not want to tout the substantive importance of these results, they do instill a good deal of confidence in the value of our data.

The next two-way interaction involves Memory Type and Memory Content. Figure 2 presents the means.²⁵ These data are collapsed across the variable of Ad Type. When the memory content was either negative or neutral, there were no differences between correct and incorrect memories. However, when the memory content was positive there were many more correct memories

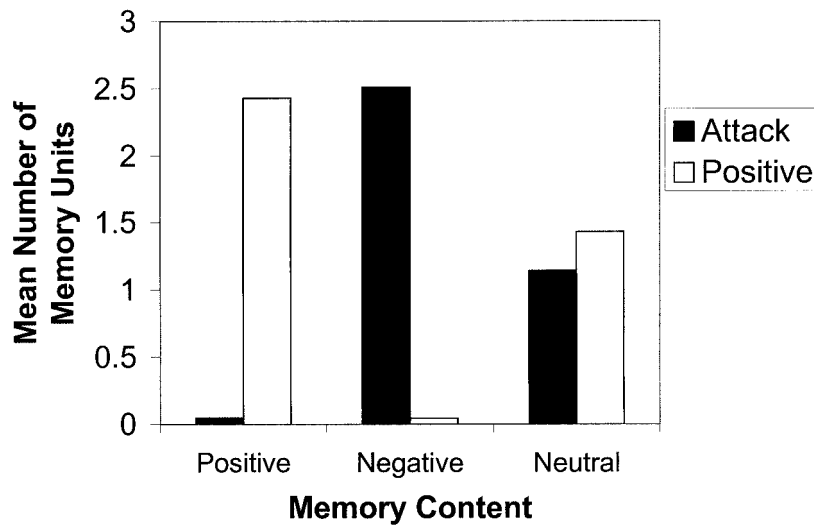


FIG. 1. Ad type by memory content.

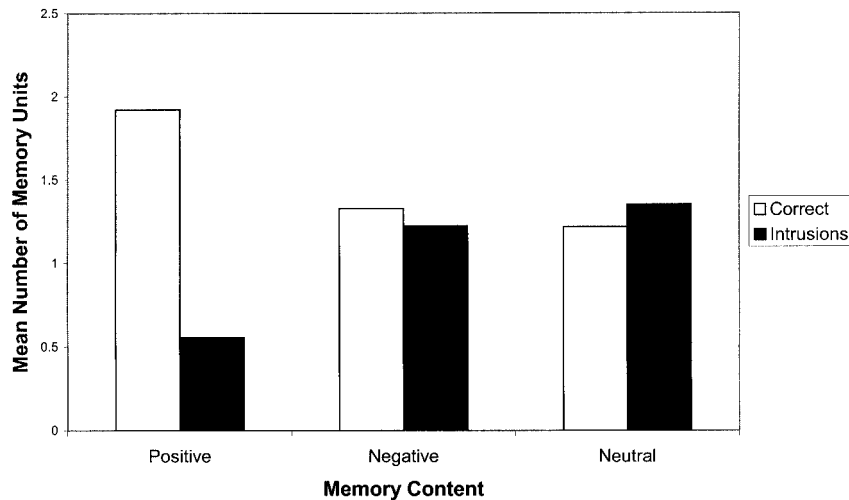


FIG. 2. Memory type by memory content.

($M = 1.92$) than intrusions ($M = .56$). This difference is highly significant ($p < .001$.) This result is potentially important. We shall take another cut at this general issue below and save commentary on its substantive significance for later.

Ad Type by Memory Type is our final two-way interaction. We display the relevant means in Figure 3.²⁶ For attack ads, the number of correct and incorrect memories is essentially equal. However, for positive ads, correct memories ($M = 1.71$) far outnumber the incorrect ($M = .89$). These data again show that attack ads, while not increasing the total number of memory units, do result in many more incorrect recalls.

Finally, the overall analysis, again using GGC, yielded a highly significant triple-order interaction.²⁷ To clarify the three-way interaction, we separately analyzed the memory data from positive ads and attack ads. The independent variables in these two 2×3 repeated measures ANOVAs were Memory Type (Correct vs Intrusion) and Memory Content (Positive, Neutral, and Negative.). The first analysis is limited to positive ads. We present the means relevant to this analysis in Figure 4. There was a highly significant main effect, when using GGC, for Memory Type.²⁸ Overall, there were more ($p < .001$) correct positive idea units ($M = 1.708$) than intrusive positive idea units ($M = .895$). The Memory Content main effect variable also was highly significant.²⁹ For positive ads, there were more positive units ($M = 2.43$) than neutral units ($M = 1.43$) and more neutral than negative memory units ($M = 0.04$).³⁰ Of course, one would not expect negative memory units from positive ads. This

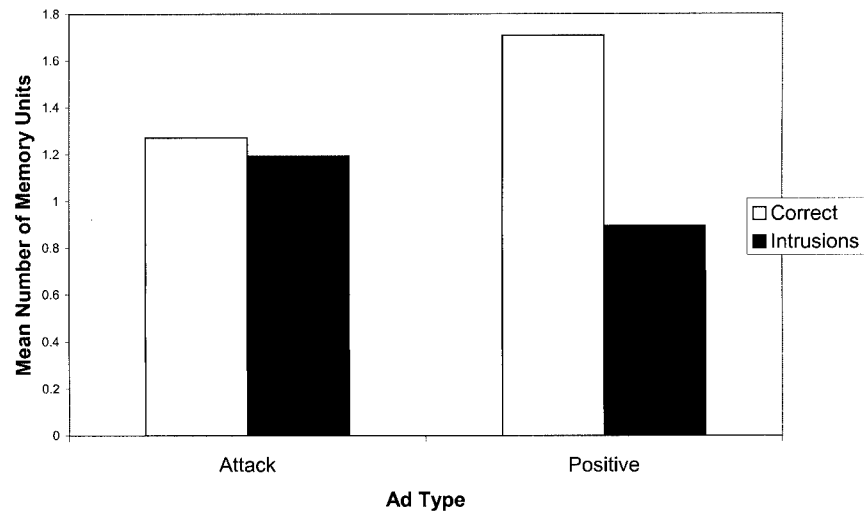


FIG. 3. Ad type by memory content type.

finding reinforces the results we described in the two-way interactions above. However, in this instance we are able to identify more precisely the findings as occurring when the spots were positive.

Our last analysis makes use of the idea units recalled from attack ads. The independent variables are identical with the previous analysis. In these results,

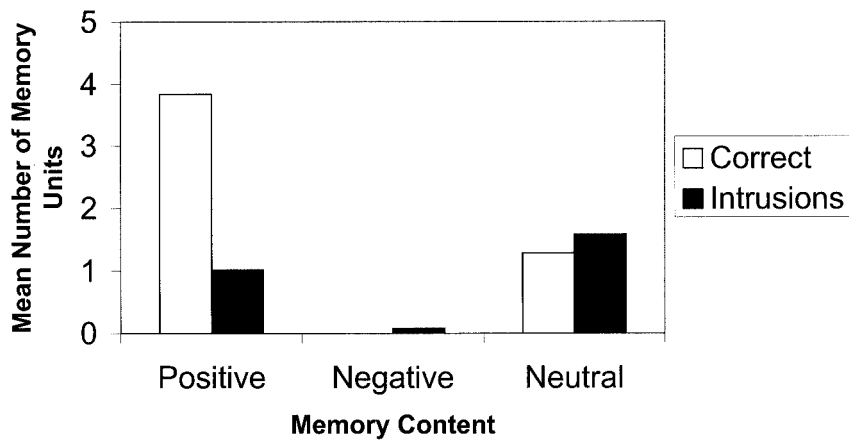


FIG. 4. Memory type by memory content for positive ads.

the only significant finding (GGC was applied) was main effect of Memory Content.³¹ Inspection of the relevant means in Figure 5 clarifies the main effect. For data from attack ads, the mean number of negative content idea units was 2.51, for neutral content the mean was 1.14, while for positive content there were essentially no positive memory units ($M = 0.05$). Each of these three points significantly ($p < .001$) differed from each other. As in the previous analysis, the limitation of these findings to data from attack ads reinforces the analyses of the two-way interactions.

DISCUSSION

Our findings warrant attention. To start, subjects recalled the same number of memory units whether they heard a positive or a negative ad. This result is consistent with the claim by some scholars that attack ads do not depress people's interest in or learning of politics (Finkel and Geer, 1998; Geer, 2000; Freedman and Goldstein, 1999; Kahn and Kenney, 1999). This finding also speaks to the general question of whether the public recalls negative information better than positive information. There is a sizable literature on this question, with mixed results (Brians and Wattenberg, 1996; Cappella and Jamieson, 1997; Hitchon and Chang, 1995; Shapiro and Reiger, 1992). The lack of differences we report increases the evidence that no relationship exists between recall and the tone of the advertisement. Our study, therefore, adds to the growing chorus that questions the longstanding assumption that attack ads stick with people more than do positive ads. With these null results (see, in

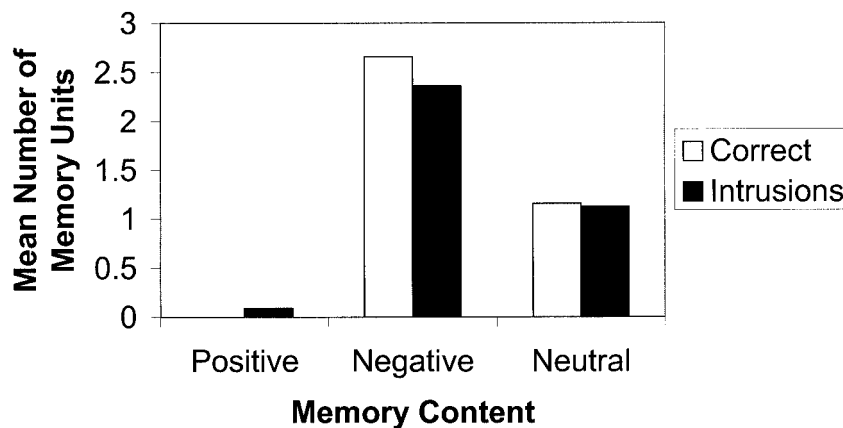


FIG. 5. Memory type by memory content for attack ads.

particular, Lau and Sigelman, 2000, p. 19), it may be time to rethink this assumption. Perhaps attack ads are common enough in today's political campaigns that they are losing their punch. We cannot be sure. But it might be time to reconsider what constitutes "conventional wisdom" in regards to key aspects of attack advertising (Lau et al., 1999).

This is only part of our story, however. The more important finding arises when looking "inside the black box" at the content of the memory units. Here, we discover that attack ads produce more inaccurate recalls than do positive ads.³² At the same time, positive ads produce more accurate recall than do negative ads. In other words, the ratio of correct to incorrect recalls changes whether one is examining attack or positive ads. It appears, therefore, that while the type of ad generates the same amount of memory recall, the *kind* of recall varies in important ways.

While there is no universally accepted model of memory in the field of psychology, scholars generally acknowledge that information is stored in packages or units often called schema (Bartlett, 1932). As Solso (2001, p. 216) noted, "(p)erhaps the most pervasive assumption about LTM (long term memory) is that information in it is organized in some orderly way." One way of representing schema, an organizing concept, is as a network of associations (Collins and Loftus, 1975). Schvaneveldt (1990) illustrates the usefulness of this approach by presenting a network model from proximity data using the algorithm named "Pathfinder." An implication of the network approach for this work is that the activation of one unit of the network or schema via a memory search will result in activation of all associated units. It is assumed that the effectiveness of the activation is reduced as the links between associates weaken and as the spread extends further and further. This notion, called spread of activation (Collins and Loftus, 1975), may be usefully applied to the current work. Our data suggest that subjects, after hearing a negative ad, are recalling not only the content of that ad but related pieces of information that exist in the individual's schema of negative political information that was activated. That is, concepts not present in the original attack ad are activated and then are accessed in the memory search. Participants do not accurately discriminate among items presented in the ad and associated items that are linked in the negative schema. By contrast, positive ads did not produce nearly as many incorrect recalls, suggesting that the memory network associated with positive information is less tightly linked. Unfortunately, neither the model nor the data tell us why this should be the case. Nor within our data set can we test this suggestion.

These findings, while interesting, are hardly definitive. We need to tease out in future work why intrusions in attack ads are more common than in positive ads.³³ Lau (1985) points to the importance of negative information and to data that suggest that such information has a more powerful affect on

the evaluation of politicians than positive information. It does not appear that Lau's work would speak specifically to memory errors, but he does emphasize the need to consider carefully the influence of negative information. That reinforces our contention that understanding the details of memory effects when examining attack ads is an important task, one in which our work offers some initial insights.

The question of whether or not these categories of memory differentially fade over time is particularly salient in the context of work by Lodge, Steenbergen, and Brau (1995).³⁴ They suggest that over time memory for political information fades and what is left is a summary of the information. It is this overall impression, not specific memory, that forms the basis for candidate evaluation. To the degree that memories play an important role in the development of the summary affective evaluation, the door is opened by attack ads to distort the impression upon which voting decisions are made. Our data do not speak directly to Lodge and colleagues' suggestion. It, however, provides additional hints at directions for future work.³⁵

While our findings have import for political psychology, there are also notable implications for the ongoing debate over the consequences of attack advertising. At first blush, our core finding appears disconcerting. The fact that people are recalling more incorrect things from negative ads than positive ads suggest that attacks can be misleading. If so, our results paint a darker side of attack advertising that has gone unnoticed in the spate of recent work. A democracy rests on a well-informed electorate, and if negative ads produce incorrect recall of information, the public may be less able to meet the demands it places on them.

However, that conclusion may be hasty. It may be that the recalled information is inaccurate for that ad, but may not be inaccurate in general. Consider one of our subjects, a Democrat, who when listening to a Democratic attack ad recalled the following: "the Republicans will more or less destroy the country and your life." Consider another participant's reaction. In this case, it was a Republican listening to a GOP attack ad, which generated the following recall: "the ad states that Democrats will try to take over everything." In both cases, there was a reaction to the ad that was not officially a part of it. Yet from a partisan perspective, is it misleading or incorrect for a member of one party to think that the other party, if elected, will yield undesirable outcomes for the nation? This is a tough question and one not answered by our results. Moreover, it may be that attacks on policy issues spark memories of other problems with the opposing party. So if the Republicans attack the Democrats for being big spenders, it may also generate an association for that person of the Democrats favoring tax increases. From a partisan perspective, this may be viewed as a good outcome of attack ads. And even from a democratic perspective, it may be important that campaigns remind voters of issues be-

yond those contained in any spot. If attack ads activate the recall of related bits of memory on relevant issues, it is not at all clear this outcome is worrisome.

All of these comments underscore that the debate over the impact of attack ads is far from over. Much work remains. We need, for example, to continue to pose questions that advance the field in new and important directions. As we seek to answer these questions, it is essential that we consider the impact of mediums other than TV. We are a multimedia society. Citizens watch a lot of TV, but they also listen to the radio, scan the Internet, and read newspapers. If we are to forge a more complete understanding of how political advertising affects elections, especially state and local contests, we must expand our horizons beyond television. Our use of radio spots represents one such attempt, but we only scratch the surface.

The need to push this research agenda further is clear. It comes into even sharper focus when we realize that an enduring feature of campaigns is their negativity (Riker, 1996). Attacks will not, nor should they, disappear. Members of the opposing party have a responsibility to raise doubts about their opponents. We certainly cannot expect politicians to be self-critical during a campaign. Even so, many observers fear the adverse consequences of excessive attacks in elections. While some of those fears are surely misplaced, it is essential we continue to grapple with this fundamental and enduring aspect of elections. In so doing, we can advance our understanding of the electoral process.

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APPENDIX A: TRANSCRIPTS OF RADIO ADVERTISEMENTS

Below are written copies of two of the radio ads used in our experiments. To save space, we have not included copies of all spots used in this study. On request, we will provide a full set of the transcripts.

1. Republican Attack 1

Next year in the 2000 elections you will be deciding the future of this country. Elections are always important. But these contests will shape and direction this nation's destiny as we embark on a new century. A century that offers hope for all people of the United States. Do we want to pursue policies that have not worked in the past?

Or do we want to chart a course that will blend new ideas with tried and true policies? It is your choice.

As you consider which party is most likely to lead this nation towards peace and prosperity, consider the following:

- The Democratic Party will raise your taxes, blunting economic growth
- The Democratic Party will weaken Social Security, undermining the well-being of our citizens as they enter their golden years.
- The Democratic Party will pursue policies that do not protect the victims of crime, allowing crime rates to rise and criminals to go free.
- The Democratic Party will not control government spending, thereby increasing the national debt.

This choice is an important one. We want to approach the century with hope and with optimism. By putting the right people in charge you will ensure that this country prospers and enjoy the freedoms and rights our forefathers fought so courageously to protect.

Paid for by the Republican Party.

2. Democratic Positive 1

Next year in the 2000 elections you will be deciding the future of this country. Elections are always important. But these contests will shape and direction this nation's destiny as we embark on a new century. A century that offers hope for all people of the United States. Do we want to pursue policies that have not worked in the past? Or do we want to chart a course that will blend new ideas with tried and true policies? It is your choice.

As you consider which party is most likely to lead this nation towards peace and prosperity, consider the following:

- The Democratic Party will not raise your taxes, promoting economic growth.
- The Democratic Party will protect Social Security, ensuring the well-being of our citizens as they enter their golden years.
- The Democratic Party will pursue policies that protect the victims of crime, lowering crime rates to rise and making sure criminals do not go free.
- The Democratic Party will control government spending, thereby paying off the national debt.

This choice is an important one. We want to approach the century with hope and with optimism. By putting the right people in charge you will ensure that this country prospers and enjoy the freedoms and rights our forefathers fought so courageously to protect.

Paid for by the Democratic Party

APPENDIX B: QUESTIONNAIRES FOR EXPERIMENT

First Questionnaire

Participants were handed the following:

In the space below write as completely and accurately as possible the political ad that you heard a few minutes ago.

On the scale below note the degree to which you agree or disagree with the content of the ad.

1	2	3	4	5
Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree

After completing the above set of questions, participants were then handed the questionnaire below:

Second Questionnaire

Informational Questionnaire

Name _____
Please print

Please answer each of the following questions.

1. Some people don't pay much attention to politics. How about you? Would you say that you are very much interested, somewhat interested, or not much interested in politics?
 - a. Very much interested
 - b. Somewhat interested
 - c. Not much interested
 - d. Don't Know
2. Which party is more likely to raise taxes or wouldn't there be any difference among them?
 - a. Democrats
 - b. Republicans
 - c. There wouldn't be any difference
 - d. Don't Know
3. Which party is more likely to cut social security benefits or wouldn't there be any difference among them?

- a. Democrats
 - b. Republicans
 - c. There wouldn't be any difference
 - d. Don't Know
4. Which party is more likely to eliminate the national debt or wouldn't there be any difference among them?
 - a. Democrats
 - b. Republicans
 - c. There wouldn't be any difference
 - d. Don't Know
 5. Which party is more likely to cut Medicare benefits or wouldn't there be any difference among them?
 - a. Democrats
 - b. Republicans
 - c. There wouldn't be any difference
 - d. Don't Know
 6. Which party is more likely to bring economic prosperity or wouldn't there be any difference among them?
 - a. Democrats
 - b. Republicans
 - c. There wouldn't be any difference
 - d. Don't Know
 7. Which party is more likely to lower crime or wouldn't there be any difference among them?
 - a. Democrats
 - b. Republicans
 - c. There wouldn't be any difference
 - d. Don't Know
 8. We hear a lot of talk these days about liberals and conservatives. Here is a seven-point scale on which the political views that people might hold are arranged from extremely liberal to extremely conservative. Where would you place yourself on this scale, or haven't you thought much about this?
 - a. Extremely liberal
 - b. Liberal
 - c. Slightly liberal
 - d. Moderate; middle of the road
 - e. Slightly conservative
 - f. Conservative
 - g. Extremely conservative
 - h. Haven't thought much about it
 9. Generally speaking, do you usually think of yourself as a:
 - a. Democrat
 - b. Republican
 - c. Independent
 - d. Don't Know

10. If think of yourself as a Republican, would you call yourself a strong Republican or a not very strong Republican?
 - a. Strong
 - b. Not very strong
 - c. Don't Know
11. If think of yourself as a Democrat, would you call yourself a strong Democrat or a not very strong Democrat?
 - a. Strong
 - b. Not very strong
 - c. Don't Know
12. If you think of yourself as a Independent, do you think of yourself as closer to the Republican Party or to the Democratic Party?
 - a. Closer to Republican
 - b. Neither
 - c. Closer to Democratic
13. How many hours do you watch TV each week?
 - a. Less than 5 hours
 - b. Between 5 and 10 hours
 - c. More than 10 hours
 - d. I rarely watch TV
14. How often do you listen to the radio each week?
 - a. Less than 5 hours
 - b. Between 5 and 10 hours
 - c. More than 10 hours
 - d. I rarely listen to the radio
15. How many movies do you watch in the theatre each month?
 - a. 1-2
 - b. 2-3
 - c. More than 3
 - d. I rarely go to the movies
16. How often do you read a newspaper each week?
 - a. Every day
 - b. Most days
 - c. Occasionally
 - d. Just on Sundays
 - e. I rarely read a newspaper
17. How often do you surf the Internet each week?
 - a. Every day
 - b. Most days
 - c. Occasionally
 - d. I do not surf the Internet
18. Where do you get most of your information about politics?
 - a. TV
 - b. Newspapers
 - c. Radio
 - d. Friends and family

19. How many do you read magazines each week?
 - a. I rarely read a magazine
 - b. 1–2
 - c. 2–3
 - d. More than 3
20. Please indicate your race or ethnicity.
 - a. White/Caucasian
 - b. African-American
 - c. Asian
 - d. Latino
 - e. Other
21. What is your gender?
 - a. Male
 - b. Female
22. Please indicate your age in years the space below.

23. Which figure below best represents your family's income?
 - a. Less than \$15,000
 - b. Between \$15,000–\$30,000
 - c. Between \$30,000–\$50,000
 - d. Between \$50,000–\$75,000
 - e. Greater than \$75,000
 - f. Don't Know
24. What is your religious affiliation?
 - a. Protestant
 - b. Catholic
 - c. Jewish
 - d. Other _____

NOTES

1. Solso (2001, p. 231) in fact observes that among “the great challenges that cognitive psychologists face as we begin the twenty-first century none is more vital to our understanding of who we are than the nature of our brain and how memories are organized therein.”
2. Communication scholars have also shown an interest in the study of memory. For example, Cappella and Jamieson (1997), Lang, Newhagen, and Reeves (1996), Newhagen and Reeves (1992), and Reeves et al. (1991) examined the impact of the mass media on citizens' memories.
3. See Shapiro and Rieger (1992) for an exception. They examined differential effects of negative and positive radio spots. Their focus was largely on how negative issue ads compared to negative image ads. There has also been interest in the impact of “talk radio” (Barker, 2002).
4. There is every reason to think that candidates competing in gubernatorial elections will also make widespread use of radio. Using Lexis-Nexis, we located 363 articles written in the past 6 months (March to August 2002) that mentioned radio advertising in its coverage of the elections for governor during the 2002 cycle.
5. To illustrate this point, consider the 2002 midterm elections. Lamar Alexander, for example, aired ads on conservative talk radio with the aim of appealing to critical voters in his battle

for the Republican nomination (Humphrey, 2002). Similar things happened in New York's battle for governor, where H. Carl McCall used radio to remind African-American voters of his roots, blunting any effort by Andrew Cuomo to court the African-American vote (Humbert, 2002). George Pataki also made use of Hispanic radio in his effort to win reelection (Rau, 2002). Texas too, with its growing Hispanic population, saw its major contenders all air radio spots on Hispanic radio to secure those critical votes (Robison, 2002).

6. While the topic of memory errors has not been widely applied to the field of political science, it has been the focus of research in other arenas. We point to the work on the accuracy of eyewitness testimony (Loftus, 1979) where false identification and inaccurate reports in criminal investigations pose a serious threat to the correct application of justice. Similarly, there has been much recent debate (Loftus, 1993; Loftus & Read, 1994) on the topic of repressed memories recovered in the course of psychotherapy. The debate often centers on whether or not the memories are accurate or false. Instances of false recovered memories with serious consequences for accused are well documented in the literature.
7. There are critics of schema theory within political science (Kuklinski, Luskin, and Bolland, 1991). We do not see our article as commenting on this debate. Our goal is simply to use the idea of a schema as a useful tool to organize the discussion of memory.
8. We did run a set of basic analyses that looked to see whether attacks influenced subjects' interest in politics, political attitudes, and strength of partisanship. Our experimental manipulation did not produce any substantive or statistically significant findings. Those results square with scholars who argue that attack ads do not adversely affect citizens' commitment to the political process. But null findings are easy to produce and not something we want to stress here. These results are available on request from the authors.
9. One of the authors served as narrator for the radio ads. This author was not a member of the faculty where the experiment was conducted, ensuring that the students could not recognize the narrator's voice. We also had a group of students listen to the ads before we ran the experiment to check on their quality. These individuals judged these spots to be acceptable radio ads.
10. Because our sample was heavily female, we ran analyses to see if these differences might undermine the generalizability of study. We found no such effects.
11. The Institutional Review Board, which reviews research protocols to ensure compliance with human subject protection, requires that we describe all tasks in a study to participants prior to beginning to take part in any study. Thus, all participants knew they would be asked to recall the content of the ad. This aspect of the study is unavoidable. But, at least all participants faced the same set of instructions, suggesting that any differences that arise across conditions cannot be attributed to this procedural requirement.
12. For additional data on this point, see <http://www.psaresearch.com/americans.html>.
13. See <http://www.psaresearch.com/americans.html> for documentation of this claim.
14. It is also important to point out that our subjects (i.e., undergraduates) are frequent listeners to radio (see <http://wargod.arbitron.com/scripts/ndb/ndbradio2.asp>). Not only do they listen to radio in their cars, but they are late night consumers as well (see <http://www.psaresearch.com/americans.html>). Students also make extensive use of Walkman and headphones as a way to listen to the radio in private. The point being that we are not exposing students to anything new in our experiment. They should feel quite comfortable listening to radio in isolation.
15. Usually, an idea unit corresponds to a sentence. A sentence often contains one idea or theme. Of course, in longer, compound sentences, there would be more than one idea unit. On request, we will provide a full accounting of how we measured idea units in this study.
16. We also tested for a possible interaction between the partisan affiliations of the subject and which party sponsored the ad. Democrats might react differently, for example, to Democratic ads. These tests did not yield any significant findings.

17. For example, the number of correct recalls for subjects exposed to GOP spots was, on average, 3.3. Among participants hearing Democratic spots, the mean was 3.1. This gap yielded an F of 1.3, $p < .25$.
18. We also ran tests to make sure randomization worked. For example, we looked for possible effects of demographic differences between subjects. We entered such variables into the overall ANOVA as covariates. In no case did significant differences (substantive or statistical) arise.
19. For purposes of clarity, Memory Type and Memory Content scoring of recall protocols yielded six categories of dependent variables: Correct Positive, Correct Neutral, Correct Negative, Intrusion Positive, Intrusion Neutral, Intrusion Negative.
20. The technical name for this assumption is "sphericity." Our approach to dealing with this statistical problem is commonly used in psychology. There are, of course, other ways to control for correlations among observations. The issue is not whether our procedure is "best," but whether we offer valid statistical inferences. Our approach clearly meets that goal.
21. The specific statistics, using GGC, were as follows: $F = 22.069$, $df = 1,119$, eta-squared = .156, $p < .001$.
22. There were, on average, 5.1 recalls of attack ads by respondents. For positive ads, the mean number of recalls stood at 4.9. This difference was not close to statistical significance ($p = .66$).
23. These null findings are consistent with other experiments, such as Ansolabehere and Iyengar's (1995, p. 49) finding that "voters came away from positive and negative advertisements with about the same amount of issue information." Lau et al.'s (1999) summary of previous work in this area finds no clear evidence that the tone of the spot influences memory.
24. The specific statistics, using GGC, were as follows: $F = 331.93$, $df = 1.878, 223.471$, eta-squared = .736, $p < .001$.
25. The specific statistics, using GGC, were as follows: $F = 29.735$, $df = 1.622, 195.588$, eta-squared = .200, $p < .001$.
26. The specific statistics, using GGC, were as follows: $F = 15.007$, $df = 1, 119$, eta-squared = .112, $p < .001$.
27. The specific statistics, using GGC, were as follows: $F = 40.987$, $df = 1.644, 195.588$, eta-squared = .256, $p < .001$.
28. The specific statistics, using GGC, were as follows: $F = 29.02$, $df = 1, 56$, eta-squared = .341, $p < .001$.
29. The specific statistics, using GGC, were as follows: $F = 123.56$, $df = 155, 86.787$, eta-squared = .688, $p < .001$.
30. These differences were both highly significant ($p < .001$).
31. The specific statistics, using GGC, were as follows: $F = 228.85$, $df = 1.0725, 108.863$, eta-squared = .784, $p < .001$.
32. The average number of intrusions was 2.4 for respondents exposed to an attack ad. The mean shrunk to 1.1 for positive ads. This difference is highly significant ($F = 22$, $p < .001$).
33. For example, one thing that warrants examination is the impact of candidate-oriented spots. Our focus was on spots about the parties. It may be that by personalizing the ad, there may be different effects on memory.
34. See also Lodge and Taber (2000) and Kuklinski (2002) for additional insights concerning the on-line processing model.
35. One might also turn to Lodge, McGraw, and Stroh's (1989) findings on positive and negative memory in regards to evaluation of candidates. In that work, they do not report differences in recognition indexes of memory between positive and negative information. They, however, report greater overall recognition accuracy when participants are instructed to process on-line. From a cognitive psychology perspective, this suggests another replication of the well-established depth-of-processing effect on memory. Material that is processed more inten-

sively is remembered more accurately. In agreement with the general thrust of their research, our findings reinforce the claim that memory is an important topic to consider when examining political phenomena.

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