Assessing a New Advertising Effect

Measurement of the Impact of Television Commercials on Internet Search Queries

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Most Americans today use both television and the Internet on a daily basis, and studies have shown that many are frequently online or in proximity of a computer while they are watching television. One result of these multi-platform media use patterns is a new television advertising effect: Today's consumer can easily obtain more information on an advertised product by searching for more information on the Web. This article demonstrates the measurement of such an effect by introducing a new metric—a measure of changes in Google search queries—that can show how TV commercials or sponsorships can trigger Internet searches by consumers. We believe this metric is a valuable addition to the researcher's toolkit for assessing advertising effects and regions of interest as it measures an actual behavioral advertising response.

INTRODUCTION

The growth of computer penetration, Internet access, and the increased time spent using the computer and Internet have arguably been the most important changes in the media landscape during the last two decades, both in the United States and in most developed countries around the world. It is, therefore, not surprising that media executives and advertisers have monitored these developments with great interest (and sometimes with concern). As the evidence mounted that most consumers were using both the Internet and their TV set—sometimes at the same time—and were exposed to advertising on both media, marketers wanted to know how advertising on both TV and online can work together and be made more effective.

Research found already 10 years ago that coordinated TV and Internet campaigns can enhance advertising effectiveness (Briggs and Stipp, 2000). Since then, studies have consistently shown that advertising impact on TV and online "interact" and, if done right, both media work better than each does alone. (Examples were recently presented at an ARF conference; see Wurtzel, 2009).

Relatively little attention has been paid to one advertising effect that has been made possible through the new multi-platform media environment, namely, the impact of television advertising on Internet searches. That effect and its measurement is the topic of this article. We believe it is an important topic for two reasons:

- First, it is a new television advertising effect. Prior to large numbers of TV viewers' having broadband access and good search capabilities close to their TV set, or even on their lap or in their hand, it was usually quite cumbersome for consumers to obtain more information on a product that they saw advertised on TV.
- Second, the measurement introduced here explores an actual behavioral effect of advertising. In other words, we are not assessing exposure, attention, or persuasion but an impact that might be a precursor to an actual sale.

In sum, we believe our research documents that search metrics can be a very important addition to research on advertising effects. This article will examine the use of this new metric to assess the influence of television advertising on search queries

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related to a number of different advertising messages. We think the case studies presented in this article demonstrate that search query data can help assess important television advertising effects and, in addition, provide new learning on how people interact with TV and the Internet.

THE INFLUENCE OF TELEVISION ON SEARCH QUERIES

Advertising can have many objectives: to remind consumers of their favorite brand, introduce new products, change brand perceptions, convince the potential buyer that new product features make the brand more desirable, and many more. Ultimately, of course, most advertising wants to sell something or make sales more likely, and all advertising ultimately seeks to motivate consumers to take some action in favor of the product and the commercial message.

While it is usually relatively easy to measure ad recall and impact on attitudes, it is often difficult to measure a commercial's behavioral impact, such as the actual sale or actions that might lead to a sale. Data on the impact of TV on Internet activity can, of course, be gathered using surveys or single-source panels (Tice and Stipp, 2009). The metrics and analyses presented here are different, since they are not self-reported and, because of the precision of these data, they allow detection of more subtle patterns that may not be evident or may be inconclusive in sample-based methods. Therefore, we wanted to explore this new metric with the hope of gaining new insights regarding not only specific advertising executions but consumer response to commercial messages in today's multi-media environment.

Google and NBC Universal both felt search data would be a valuable new metric, but we did not think of it as a replacement for other methods. For example, this measurement appears to be best suited to measure a relatively short-term impact of live viewing. More important, we would not expect all TV advertising (or advertising of any kind) to lead to a large amount of online searches. While one of the most important functions of advertising is to stimulate interest in a brand (Rubinson, 2009), much of advertising has another goal: It wants to remind consumers of a brand they already know (Ehrenberg, 2004). Consequently, there is no reason for the consumer to search as a result of those kinds of ads. In fact, one could argue that "reminder" ads are designed to discourage search activity—the advertiser wants the consumer to stay with the brand "you trust" and not seek information about a competitor.

Because of these considerations, we made some decisions about the kind of advertising we wanted to measure in this initial exploration of the value of search measurement: First, we selected advertising we felt had the potential to trigger search activity and ignored "reminder" ads for well-known products—which may be very effective but not in the way examined here. Second, we decided that it would not be interesting to study ads that contained a call to action (such as "go to our Web site"). We wanted to explore the hypothesis that advertising for new and/or interesting products would stimulate Internet searches even if there was no call for action.

Measuring Internet Search Queries

Every day, more than a billion searches for information are made on Google, covering almost every conceivable subject. More than half of these come from outside the United States, with results localized in more than 55 countries and 35 languages worldwide (Battelle 2005). Using anonymized logs of these searches, Google is able to create metrics to measure the volume of queries for specific search terms. Since 2004 Google Insights for Search (http://www.google.com/insights/search) has allowed individuals to chart how many searches have been made regarding specific terms relative to the total number of searches done on Google over time in daily intervals. The search query data can be limited to specific geographic regions (for example, certain countries or time zones), and they are available retroactively (Google, 2010).

The metric introduced here builds on capability. It allows very finely grained analysis in which queries can be counted in 1- or 5-minute buckets or, if multi-day studies are preferred, results can be reported in hour-by-hour intervals. No personally identifiable information, however, is available about each query. Results are given as an index rather than a raw count to avoid inadvertent disclosure of total search query volume in any given region. The index is always relative to the maximum number of queries found for each set of terms, so results from one set are not directly comparable to those of another. The value of the measure lies in its ability to pinpoint changes in the amount of searches with great precision and, thereby, suggest the likely cause of the change in queries.

This metric can, of course, be applied to a variety of issues. In fact, Google initially looked at data on the volume of search queries for a given term as a measure of the amount of interest in that subject and its connection to external events during specific time spans (*e.g.*, the number of searches for an event or person). Google search queries also appeared to be an early indicator of current economic trends in car and home sales (Varian, 2009) and unemployment statistics (Varian and Choi, 2009). Geographical patterns in Google search queries have even been used to track the spread of infectious disease (Ginsberg et al, 2009). This article will focus, however,

on measuring advertising effects. The data presented here are the result of a business relationship between Google TV Ads and NBC Universal that led to discussions of using search queries metrics to assess the impact of television advertising on search behavior and to gain new insights on how TV advertising affects consumers' behavior online.

Case study 1: New Product Introduction during Beijing Olympics

During NBC's 2008 broadcast of the Beijing Olympics, Chevrolet's Volt electric car was advertised on television for the first time. Figure 1 shows the U. S. query volume for the phrase "Chevy Volt" on Google.com in August, 2008. More than a 20-fold jump is seen on August 8, when this ad was shown during the opening ceremonies.

One of the new and perhaps surprising findings here is that television advertising not only drives people to Internet searches but does so almost immediately. Viewers are clearly willing to go back and forth between TV and the Internet quite quickly. This is evident not only in the preceding example but in the following analyses.

Case study 2: Car Ad Shown during Vancouver Olympics

Figure 2 shows a very similar case: a car ad shown during the opening ceremonies of the Vancouver Winter Olympics in 2010. Here we have plotted the minute-by-minute volume of queries from U. S. Internet addresses containing the phrase "Nissan Leaf." As in Case Study 1, we see a strong, immediate impact after the commercial ran. In this example, we also see the impact of time zones. Because the broadcast was delayed for viewers in Pacific Time, we see an additional spike

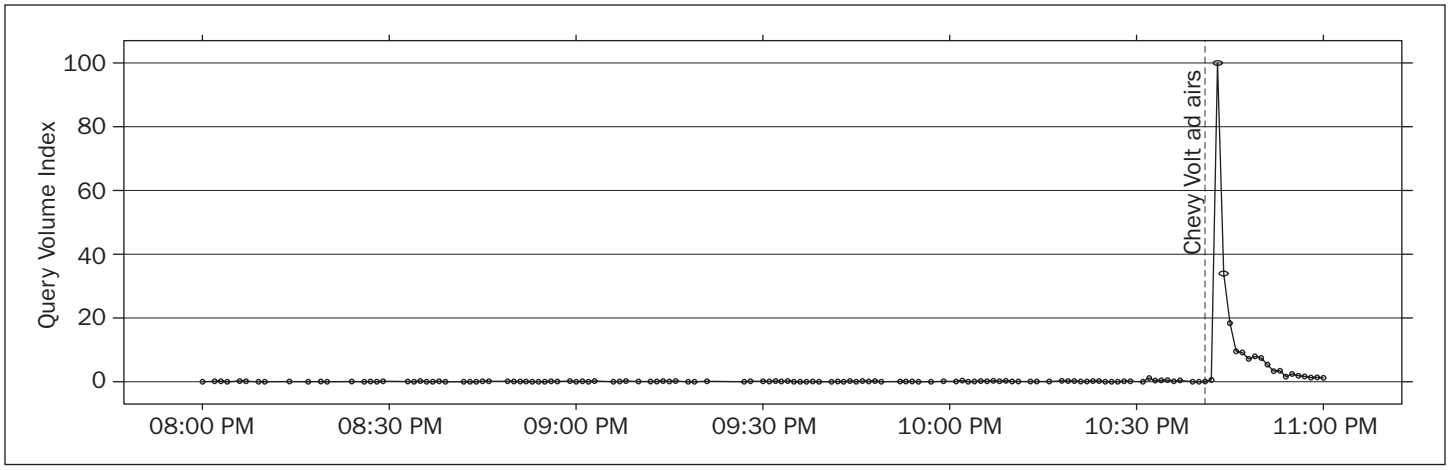

Figure 1 Search Queries for "Chevy Volt" during Beijing Opening Ceremonies

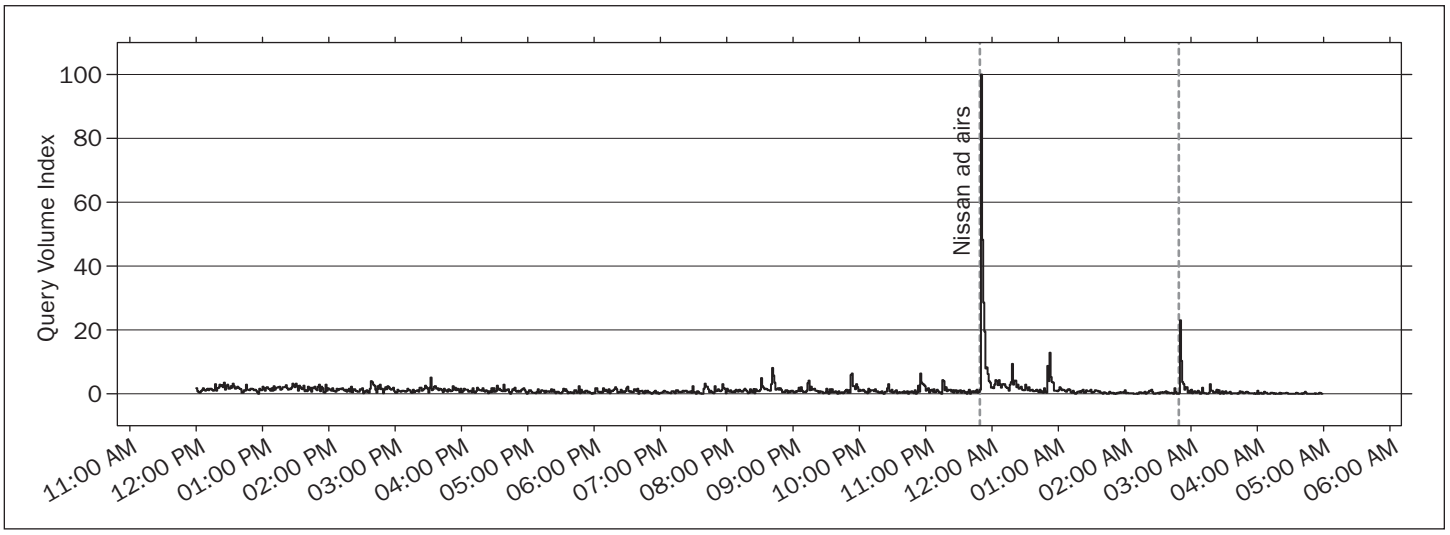

Figure 2 Search Queries Containing "Nissan Leaf" during Vancouver Opening Ceremonies

(marked with another dashed vertical line) exactly 3 hours after the first; the peak is smaller in magnitude owing to the smaller population on the west coast. An even smaller Central Time peak (unmarked) is visible 1 hour after the initial spike.

Case Study 3: Special Primetime Promotion for a Movie Opening

In the first two cases, the ad was shown only during the Games—which made the impact on searches clearly evident. Is this metric also useful when a product is heavily advertised in a variety of media outlets? Case Study 3 addresses that question.

In May 2009, the opening of the film "Night at the Museum 2: Battle of the Smithsonian" was heavily promoted on television (according to TNS Media Intelligence data). One promotion took place during NBC's Thursday night primetime programming on May 7. It included regular 30-second commercials and special programming material (stars of the movie visiting the NBC lot in Burbank). Therefore, the measurement task was not to assess the impact of one single commercial on one network but to attempt to assess the impact of a promotion that took place in the middle of a campaign.

Figure 3 shows the hourly volume of U. S. search queries for this movie title when these promotions took place. We can see clear daily patterns—there is more searching in the evenings than during the day or late at night—but the highest volume of searches is seen in the 8 p.m. and 9 p.m. hours during which the promotions aired on NBC. (The smaller spike at 11PM may be due to west coast viewers.)

In this case, the results are, of course, not as clear-cut as in the first example. Measuring the impact of one promotion during a large campaign makes it impossible to attribute search activity solely to a specific promotion event. Nevertheless, the data suggest that this metric is able to assess the impact of a specific promotion within a campaign. Because of the precision of the metric, we can see that the level of search activity peaked immediately after the special promotion on NBC. (Additional data, not shown here, indicate that the impact was larger than that in any of the prior 2 weeks and that it was not matched again until the following week, when advertising weight was even heavier and the opening of the movie was imminent. All this suggests that there was an impact that can be attributed to this promotion, even though there may have been interaction effects.)

Case Study 4: New Product Introduction during Late Night Program

The fourth case study is of interest for two reasons (See Figure 4). First, the cases examined thus far deal with advertising during primetime. This raises the question whether the TV-Internet interaction effects observed during the earlier evening hours can be replicated for late-night viewing. We are analyzing a promotion for a new product introduced during a Saturday Night Live (SNL) broadcast to find out whether interested consumers are ready to search for more information on the advertised product at that late hour or whether viewers tend to be less active and less willing to engage with their computers, laptops or smartphones at that time.

The second reason why this case is of interest is the nature of the sponsorship. During the October 17, 2009, telecast of SNL, a new beer brand was introduced in seven vignettes that contained commercials and sponsored "historic" SNL clips. This allows us to compare the consumer responses after the various vignettes.

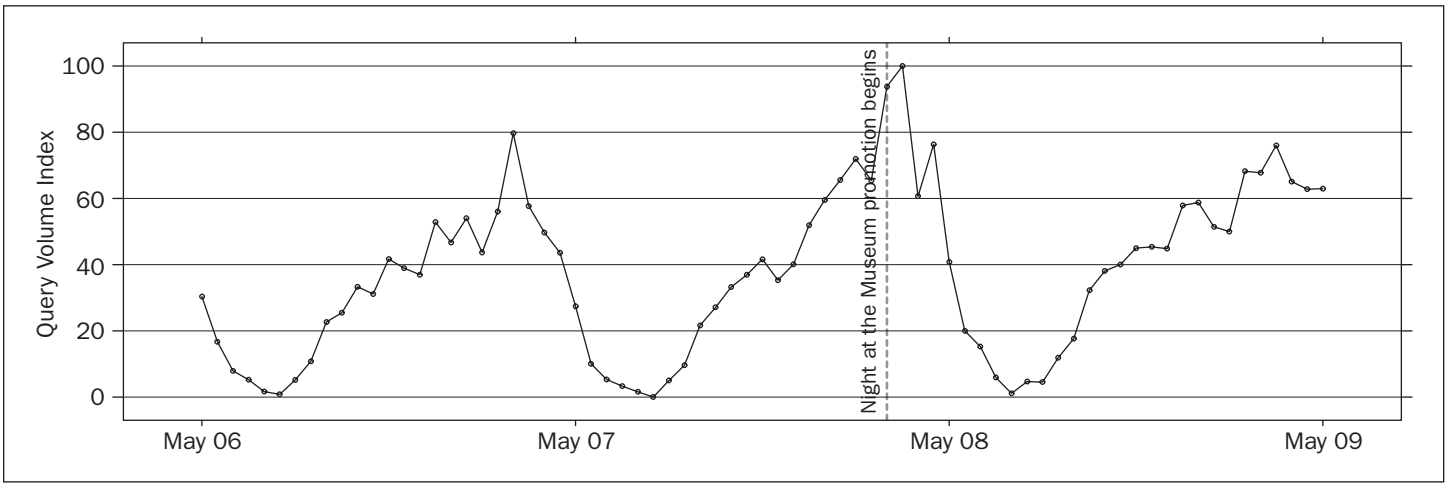

Figure 3 Hourly Searches for "Night at the Museum 2" around May 7, 2009

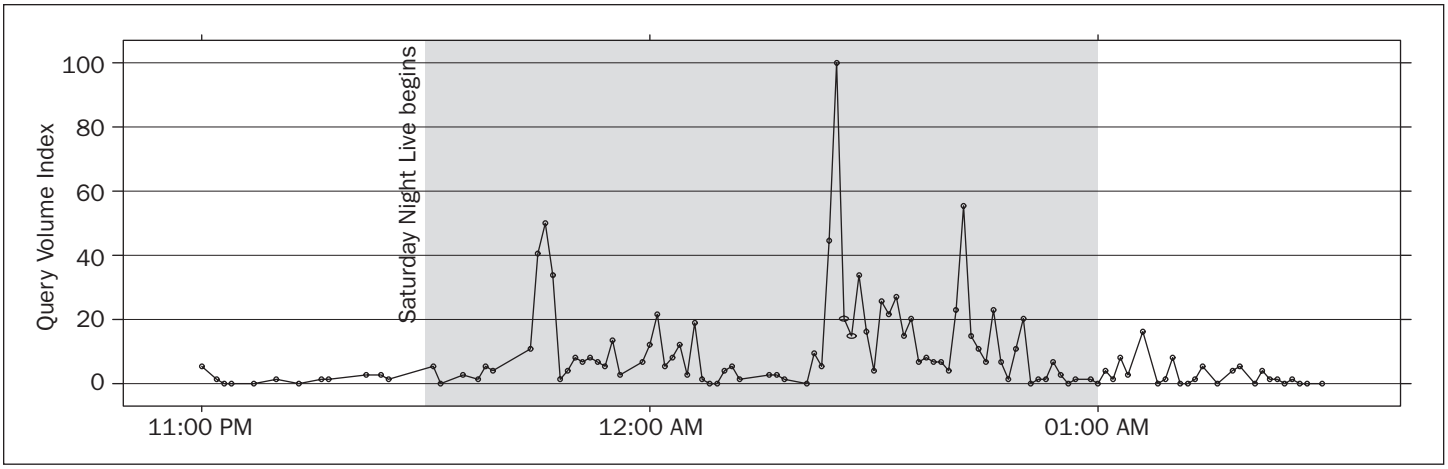

Figure 4 Queries for new Beer Brand during Saturday Night Live

The data (shown in Figure 4) confirm the patterns observed in the first two cases: We see a strong effect due to the fact that many viewers are looking for more information on the advertised product immediately after the TV promotion. Here we have plotted searches only from New York State to isolate any time zone effects. (Because the program lasts more than an hour and included several vignettes, viewers in Central Time would otherwise have overlapped viewers in Eastern Time.) In addition, we see that viewers reacted after all promotions, not only the initial ones. Finally, the data indicate that some viewers searched a few minutes after a promotion, indicating that the bursts of search immediately after a commercial may not always represent the entire search impact.

Case study 5: Theme Park Ad during Vancouver Olympics

The final case study from our initial exploration of this new metric demonstrates even greater variation by time zone.

Figure 5 again shows search data based on Eastern Standard Time, this time for a new Harry Potter ride at the Universal Studios theme park in Orlando, Florida. Therefore, the ad that ran during the Vancouver Olympics coverage at 10:51 EST ran at 1:51 a.m. EST on the West Coast. The spike for searches is visible at both time points, but it is much larger in the East. In this case, we believe this is not only because more Americans live in the Eastern time zone than in Pacific Time; it also seems that Easterners found it more urgent to immediately search for a Florida park in the middle of one of the coldest winters in memory; the ad likely had considerably less appeal to Californians. This

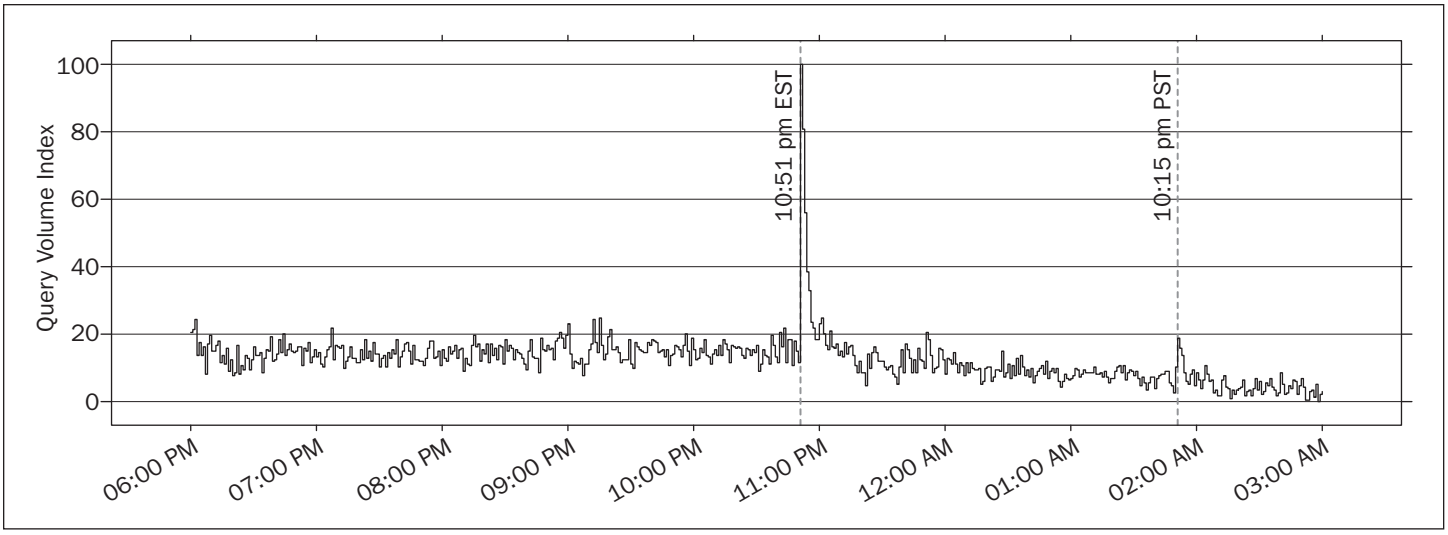

Figure 5 Searches in two time zones related to Theme Park during Vancouver Olympics

likely explains why the difference between the spikes is so much larger here than in the preceding Nissan Leaf example.

The data suggest that simultaneous use of TVs and PCs facilitates an important TV advertising effect—taking an immediate step to obtain more product information.

CONCLUSIONS AND DISCUSSION

Even though Americans' media behavior is constantly evolving, it seems that for the foreseeable future, most consumers will use both TV and the Internet. This provides new opportunities for marketers to reach consumers and enhance the impact of their messages. At the same time, new media use patterns challenge researchers to find measures of advertising effectiveness that capture these new usage behaviors. By providing a measure of viewers' Internet search query behavior, we have obtained a new, important mechanism for assessing how television advertising can influence consumers in today's media environment.

It needs repeating that this new metric is not meant to be a substitute for other advertising effect or ROI measures. Rather, it represents an additional metric that is able to provide a measure of one aspect of consumer response. Since it can be obtained very quickly—typically the day after the ad aired—it is valuable as an initial test of ad impact, even if it does not measure all aspects of advertising effectiveness. Further, as outlined, a large portion of TV advertising is for very-well-known brands, and those ads should not be expected to trigger a significant volume of search, even if they are highly effective. (In fact, we did conduct an analysis on an ad for a well-established brand and, as expected, found no measurable rise in search volume.)

The case studies have shown that TV advertisements can stimulate significant increases in Web site visits: that is, lead consumers to get more information about the product—a possible precursor to an actual sale. While more analysis is necessary, we have evidence for several of the case studies reported here that the advertising impact indicated by a rise in search queries was also evident in other measures of ad effect.

Further, because of the precision of these new metrics, we were able to gain new insights into the media behavior of today's consumer. For example, we found that advertising can lead consumers to search for more information almost instantly and that, by implication, consumers who are using television and the Internet simultaneously continue to be reached by TV messages.

These analyses confirm that many viewers today are "media multi-tasking"—that is, attending to both their TV and PC or laptop or smartphone at the same time—or that they have an Internet-connected device close by and were ready to use it. The findings shown are consistent with data that show about half of American homes have a home computer in the same room as a TV (Knowledge Networks, 2009) and that there is a lot of media multitasking among users of nearly all ages (Council for Research Excellence, 2009). However, these data also provide new insights into the implications of media multi-tasking.

In the absence of solid data, there has been speculation that media multi-tasking could lead consumers to ignore commercial messages. These data suggest this was a premature judgment: The data suggest that simultaneous use of TVs and PCs facilitates an important TV advertising effect—taking an immediate step to obtain more product information—that did not exist prior to Internet access in the living room and prior to effective and efficient computer search capabilities.

New data obtained through surveys conducted by NBC as part of the "Vancouver Olympics Research Lab" during February 2010 confirm this: 61% of TV viewers with Internet access said they had "seen an ad on TV and then searched for more information about that product or service online" (during the past couple of months). Another data point indicates that the importance of this new TV advertising effect is likely to continue to grow: 64% agreed with the statement "I'm online more often looking for additional information while I watch TV" (than I used to). In other words, as consumers' media patterns evolve, advertisers do encounter challenges through competing media, but they also gain new opportunities to make their ads more effective. As this is an initial exploration of a new metric, it not only provides new insights but leaves us with a number of open questions. For example, we think it would be interesting to explore whether these search metrics are also useful to assess longer-term and cumulative effects. In other words, can we measure how exposure to a TV campaign leads to an increase in searches over time, in addition to the short-term bursts we have seen in these data? (Such effects have been reported, for example by Goetzel, 2010, who shows that TV ads can stimulate viewing online.) Further, as set-top box-tuning data are increasingly used to

obtain TV usage information, we want to examine the relationship between searches and set-top box tuning data (Zigmond and Lanning, 2008, and Zigmond et al, 2009). Finally, it appears certain that these search metrics can also be useful to explore to what extent and in which way other, non-commercial elements of TV content—from names, places, and issues mentioned in news or documentaries to program promotions—lead to computer search queries. JAR

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