

# MEASURING THE IMPACT OF WORD OF MOUTH: TOWARD A NEW METHOD

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## **Peeter W.J. Verlegh**

Associate Professor of Marketing  
Rotterdam School of Management  
Erasmus University Rotterdam  
The Netherlands  
[pverlegh@rsm.nl](mailto:pverlegh@rsm.nl)



## **Willem Sodderland**

CEO and Founder of Buzzer - The Netherlands  
[willem@buzzer.biz](mailto:willem@buzzer.biz)  
[www.buzzer.nl](http://www.buzzer.nl)



*With the invaluable assistance of Amber Dikker*

## **1. Introduction**

With the rise of word-of-mouth marketing, more and more parties have become interested in knowing the power of word of mouth. A popular way to assess the influence of word of mouth and other types of information is to survey consumers and ask them how important word of mouth (or advertising, or newspaper articles or...) has been in their decision to buy X, or to ask them to what extent they trust in several sources of information. In general, the results of such surveys show that word of mouth is (sometimes by far) the most trusted and most influential source of information. These numbers are shown over and over again in presentation, and are featured in many publications in this area.

But people have great difficulty in assessing which factors influence their decisions. The literature in psychology, marketing and consumer research is full of

studies showing that consumers are often influenced without being aware of it (see Malcolm Gladwell's "Blink" for an introduction). Moreover, even if we are aware of the factors that influenced our decision, how reliable are our estimates of the relative power of these factors? And how many people would willingly admit being influenced by mundane ads? For these and others reasons, psychologists and other students of human decision making have long given up on introspection as a means of finding out about the extent to which a given factor influences people's decisions. Although there are a number of alternatives for measuring the factors that impact decisions, one common approach is to manipulate or measure the presence or level of certain factors, and then relate this to the overall preference or choice of a product or service.

We could for example, show a consumer a TV with a big screen and a TV with a small screen and then ask them how much they like each of the TV's. This way, we can find out about the extent to which the consumer's liking for the TV is influenced by the size of the screen. If we do this for a bunch of TVs that differ on a bunch of aspects, we could measure the extent to which each of these aspects influences consumer's liking for the TV. Obviously, this method has its shortcomings, but at least it avoids the pitfalls of introspection, which is why conjoint analyses and related models have become immensely popular in product development and other areas where it is important to know why consumers prefer a certain option or make a certain decision. In this paper, we propose a measure for assessing the impact of word of mouth. This method is analogous to the above described methodology for measuring the impact of screen size on the liking for TV's.

## **2. Our method**

The basic idea behind our method is to collect consumers' product evaluations (say a TV of type XR300), and statistically relate these to the extent to which these consumers have been exposed to different sources of information about the XR300. By "sources of information" we mean word of mouth, TV advertising, radio commercials, etcetera. In the remainder of the paper, we will use the term "media contacts". This analysis would enable us to assess the relative impact of different types of media contacts on consumers' product evaluations. More specifically, we would be able to assess the average contribution of one ad contact or one word-of-mouth contact to a person's evaluation of the XR300. Of course, we could easily substitute "evaluations" for judgments of "satisfaction," or "purchase intention," or "product ownership." Although this method does have its shortcomings (we will address these later), it is relatively straightforward and goes beyond simply asking consumers how much they are influenced by ads or word of mouth, or asking them how much they trust various media.

In this paper, we describe a first application of this method. We focus on two products [Coke Zero and the Nintendo Wii game computer]. We surveyed consumers about the frequency with which they came in contact with different types of media informing them about these products (such as advertising and word of mouth), and next asked them about their attitude toward the products. Through regression analyses, we then determined the relationship between media contacts and attitude.

### 3. Study description

This study was conducted among members of the word-of-mouth panel maintained by Buzzer. We sent 14.000 consumers a link to a survey about one of two products that were recently introduced at the time of the study: Coke Zero and Nintendo Wii. Assignment to the questionnaires was random, and each link was sent to 7000 consumers. In total, we received 4181 responses, of which 432 were discarded due to various reasons, including incompleteness (272) and being completely unaware of the product (70). The final sample was composed of 21 % males and 79% females, and average age was 33 years, with a standard deviation of 8.5, and a range from 18 to 72. this is similar to the demographics for the population to whom we sent the links. For the Wii-questionnaire, the final N = 1937, for Coke Zero N = 2244.

The questionnaire first measured consumers' exposure to product information from various sources. For word of mouth, we asked for example: "How often did you hear something about [product] from someone you know?" Responses to this question were given on a five point scale running from "never" to "very often." Respondents who checked "never" went on to the next question. The others were asked to estimate the number of times they heard something about the product in this way (open-ended question). Similar questions were asked for (1) WOM in general, (2) positive WOM, (3) negative WOM. (we skipped these questions for respondents who checked "never" in response to the first question), (4) TV commercials, (5) radio commercials, (6) magazine and newspaper ads, (7) internet ads, (8) reviews and other news items. The highest

number that could be entered was 99, which was done by only a few consumers (less than one percent).

Analyses of these measures showed that the correlation between rating and frequency estimates was always positive and significant (at  $p < .001$ ), ranging from 0.52 to 0.71. Correlations between media were lower, but still significant and positive. In addition, these patterns were comparable for estimates and ratings. For example, the correlation between word of mouth and TV ads was equal to 0.22 ( $p < .001$ ) when measured with ratings, and 0.27 ( $p < .001$ ) when measured with estimates.

Next, respondents were asked to rate several judgments of the product, including purchase likelihood, familiarity and a multi-item attitude scale, on which we focus in the present paper. Attitude toward the product was measured on three seven-point semantic differential scales with the ends labeled negative / positive, not appealing / appealing, and bad / good. These items were combined into a single measure by means of averaging (scale reliability was high, with Cronbach's alpha = 0.98).

#### **4. Empirical results**

For Coke Zero, 68% of the respondents indicated they had heard about this product from a friend. 87% of the respondents indicated they had seen one or more TV commercials for this product, and 55 % had seen magazine or newspaper ads. Exposure to other sources was reported by less than 30% of respondents. For the Nintendo Wii, 91% had received word of mouth from people they know, while 88% had seen TV commercials, and 70% had seen print ads. Furthermore, 59% had seen ads on the internet and 59% had read reviews or other news items about this product. The table below shows the average

values of the frequency of contact with different media, as estimated by the respondents. Remember that these are estimates by respondents. This means, for example, that the reported number of ads will be influenced by the memorability of the advertising. For both products, most media contacts are TV commercials, although for the Wii, this is almost equaled by the number of positive word-of-mouth conversations. Word of mouth for the Wii was very positive, with 18 positive conversations for every negative one. For coke zero, the buzz was more ambiguous, although there were still almost three positive conversations for every negative one.

**Media Contact Frequency (average of respondents' estimates)**

	<b>Mean freq. for Wii</b>	<b>Mean freq. for Coke Zero</b>
<b>Positive WOM</b>	13,76	3,63
<b>Negative WOM</b>	0,77	1,30
<b>TV ads</b>	15,49	14,2
<b>Radio ads</b>	0,97	1,4
<b>Print ads</b>	7,24	3,62
<b>Internet ads</b>	9,17	1,25
<b>Positive reviews</b>	4,85	0,87
<b>Negative reviews</b>	0,58	0,22

The key analyses in this study were the regression analyses in which product attitude and purchase likelihood were predicted by media contacts. We also entered quadratic terms to control for In these regressions, we always controlled for product category usage, for

gender and for age. The overall fit of these models was satisfactory, with R-squared values of 0.26 for Coke Zero, and 0.29 for Wii. Although this may seem low, one has to keep in mind here that we try to predict product evaluation from media exposure. There are many other variables that influence the evaluation of a product, and while our control variables may get at some of these, there are of course plenty variables left. The results are discussed below. For these results, we rely on consumers' estimates of the number of contacts with each of the media. We obtained similar results when we used the ratings scales in our analyses, but report the estimates, because these can be directly related to the impact of a single media contact.

### **Impact of various media on Attitude toward Coke Zero**

(see text for explanation of variables)

	<b>Coefficient</b>	<b>Coefficient for Quadratic effect</b>	<b>Mean Impact</b>	<b>Impact of 10 contacts</b>
<b>Positive WOM</b>	0,172	-0,002	0,595	1,496
<b>Negative WOM</b>	-0,202	0,003	-0,258	-1,735
<b>TV ads</b>	ns	ns	---	---
<b>Radio ads</b>	ns	ns	---	---
<b>Print ads</b>	0,019	ns	0,067	0,173
<b>Internet ads</b>	ns	ns	---	---
<b>Positive reviews</b>	0,057	-0,001	0,049	0,461
<b>Negative reviews</b>	-0,152	ns	-0,033	-1,134

For Coke Zero, we found a significant positive coefficient of 0.172 ( $p < .001$ ) for positive word of mouth, and a negative coefficient of -0.202 ( $p < .001$ ) for negative word of mouth. Thus, in our study, one positive word of mouth conversation lead to an increase of 0.17 on our 7-point product attitude scale. This number is not constant: there is a decreasing marginal effect of word of mouth, so that the second conversation has less impact than the first, and the third has less impact than the second. This is represented by the negative coefficient for the quadratic effect in the table above (-0,002). Again, this seems small, but we have to realize that this number has to be multiplied with the quadratic number of media contacts (so, for 10 contacts, it has to be multiplied by 100). If we take this into account, the impact of 10 conversations is equal to 1.5 on a seven-point scale, which is a considerable jump in product attitude. The average number of positive conversations for Coke Zero was equal to 3.63, so that the average impact of positive word of mouth on consumers' attitudes toward coke zero was equal to 0.6. the table above contains similar number for all forms of media contacts.

Three points warrant further attention: First, for Coke Zero, the impact of a single positive word of mouth conversation is comparable to that of a negative conversation. However, because there was more positive word of mouth than negative word of mouth, the average impact of positive word of mouth was about 2.5 times bigger. Second, TV, radio and internet advertising were not significantly related to consumer attitudes toward coke zero. Only print ads had a significant influence, but this is only about one-tenth of the effect of positive word of mouth. Third, reviews and other product news potentially have a strong impact on product evaluation. Especially for negative reviews, the influence is comparable to that of word of mouth from friends and acquaintances. It

should be noted, however, that the number of reviews encountered by consumers was very small (less than one on average), so that their market-level impact was negligible (less than one-twentieth of a scale point).

### **Impact of various media on Attitude toward Nintendo Wii**

(see text for explanation of variables)

	<b>Coefficient</b>	<b>Coefficient for Quadratic effect</b>	<b>Mean Impact</b>	<b>Impact of 10 contacts</b>
<b>Positive WOM</b>	0,040	-0,0004	0,480	0,363
<b>Negative WOM</b>	-0,150	0,0046	-0,113	-1,045
<b>TV ads</b>	0,007	-0,0001	0,096	0,065
<b>Radio ads</b>	ns	Ns	--	--
<b>Print ads</b>	ns	Ns	--	--
<b>Internet ads</b>	0,009	-0,0001	0,076	0,082
<b>Positive reviews</b>	0,034	-0,0004	0,155	0,300
<b>Negative reviews</b>	-0,065	0,0008	-0,037	-0,575

For Nintendo Wii, we found a significant positive coefficient of 0.040 ( $p < .001$ ) for positive word of mouth, and a negative coefficient of -0.150 ( $p < .001$ ) for negative word of mouth. Especially for positive word of mouth, this is strikingly lower than the figure for Coke Zero. In addition, the difference between positive and negative word of mouth is much bigger for this product: It takes almost four positive conversations to undo the effect of one negative. A possible explanation is the fact that Wii is a much more complex and expensive product, so consumers are more careful and risk-averse in their

evaluations. Interestingly, the amount of positive word of mouth is so large (nearly 14 conversations on average), that the average consumer is influenced more than four times more by positive word of mouth (0.480 – about half a scale point - versus -0.113). Another noteworthy outcome for the Nintendo Wii is the impact of TV advertising. Although it is much smaller than that of word of mouth (positive word of mouth has almost 6 times more impact per contact), it is significant and positive. The same goes for internet advertising, which is of comparable power. A final note regards the impact of professional reviews and news articles. For the Wii, the impact of reading one positive review is comparable to that of having one positive conversation with a friend or acquaintance. The number of positive reviews encountered is also quite substantial (close to five on average), so that their role cannot be ignored (in fact they had about twice the impact of TV advertising). As with word of mouth, negative reviews are more powerful than positive ones, but they are not as devastating as negative word of mouth. Also, the number of negative reviews encountered by our sample was very small, so that the impact of negative reviews on the average consumer was extremely small (less than one-twentieth of a scale point).

## **5. Conclusion and Discussion**

The results of this first study are encouraging, and are at the very least not outrageously different from a-priori expectations. At the very basic level, we see positive effects for positive word of mouth and reviews, and negative effects for negative WOM and reviews. Like other researchers, we find that the impact of word of mouth is much bigger

than that of TV advertising: For Coke Zero, TV advertising was not significant, while word of mouth had a strong positive effect, and for Nintendo Wii the ratio is about 6 to 1.

Like any research, the present study has its limitations. We have mentioned several in the course of this paper. This work should therefore not be regarded as the definitive piece on the power of word of mouth. It also does not offer the solution to all existing problems in the measurement of the impact of word of mouth and other forms of product information. We are confident however, that the method we present has considerable advantages over the existing and often used methods that rely on self-reports to compare the impact of different media on consumers. The reason for our confidence lies in the years of research that have taught us that consumers simply are unable to assess how strongly they are influenced by a certain piece of information.

We are currently in the process of further developing and testing this methodology, and invite you to participate in this process. If you have available a panel of consumers who can be surveyed in a similar manner, we invite you to get in touch with the authors of this paper.