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Stoddard, James E.; Dotson, Michael; and Das, Neel (2016) "Using Focus Groups and Correspondence Analysis to Explore the Relationship Between Millennials' Online Behavior and Their Opinions of Online Reviews," *Atlantic Marketing Journal*: Vol. 5 : No. 2 , Article 4. Publisher version of record available at: <https://digitalcommons.kennesaw.edu/amj/vol5/iss2/4>

Using Focus Groups and Correspondence Analysis to Explore the Relationship Between Millennials' Online Behavior and Their Opinions of Online Reviews

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Abstract - This paper explores the relationship between millennials' online behavior and their opinions of online reviews via the use of focus groups and correspondence analysis. The proposition was that millennials' online behavior (including search behavior) is likely to have an effect on how they view online reviews. The correspondence analysis results suggest that millennials who spend more time online peruse a greater number of products. Further, relationships were found between millennials' time online and factors influencing review trustworthiness as well as millennials' time online and factors affecting review memorability. It is noteworthy to suggest that focus group analysis can be enhanced through the use of correspondence analysis.

Key Words – Online Reviews, Focus Groups, Correspondence Analysis

Relevance to Marketing Educators, Researchers and/or Practitioners – This paper provides insight into Millennials' online shopping behavior by exploring their evaluations of online reviews. The analysis of transcribed focus group discussions were facilitated via Correspondence Analysis. The correspondence analysis results found relationships between millennials' time online and the number of products they perused online as well as factors influencing review trustworthiness and review memorability.

Note: A previous version of this paper was presented/published in the Proceedings of the 2015 Atlantic Marketing Conference.

Introduction

Consumer decision-making regarding a purchase is usually influenced by feedback received from other people in addition to prior experiences/beliefs/attitudes and marketer dominated information. Such diverse sources of influence are collectively referred to as the influence mix (Simonson and Rosen, 2014). Of the different sources in the influence mix, word-of-mouth (i.e., feedback received from other people) is one of the most impactful sources of information (Duan, Gu, and Whinston, 2008). With the advent of e-tailers on the Internet, the influence of word-of-mouth communication has grown significantly in the form of online consumer reviews (Schindler and Bickart, 2012). Research has shown that online reviews significantly influence consumer purchase decisions (see, for example, Chevalier and Mayzlin, 2006; Senecal and Nantel, 2004). Further, according to Zhu and Zhan (2010), 24% of Internet consumers avail themselves of online reviews before buying an offering offline; additionally, the authors note that an increasing number of firms persuade consumers to spread word of their offerings online.

At the same time however, companies have also been noted to harass consumers when negative reviews have been posted online. Kleargear.com, for instance, charged an individual \$3,500 for writing a negative review (Disinformation, 2013). In another case, when a Virginia resident gave a negative review for a dog obedience school, the resident had a defamation lawsuit filed against her to the tune of \$65,000 for providing the negative review (Daily Finance, 2015). Across the Atlantic, guests were fined when they left negative reviews (on TripAdvisor) regarding a hotel in northern England. In short, marketers strongly believe online reviews to be highly influential and credible (Ho-Dac, Carson and Moore, 2013). Such theoretically determined importance of online reviews is further reiterated anecdotally when evidence, as presented above, shows how some companies end up suing the consumers for providing negative reviews even though the consumers were correct in doing so.

Academicians in the domain of marketing have been conducting research investigating the varied nuances of this important phenomenon. Inquiries have been made focusing on the effects of reviews on consumer purchase intentions. Duan et al. (2008), for instance, noted that ratings of movies online have little impact on consumer choice and purchasing decision. Surprisingly, another study looking at the same context found that the valence (the mean user rating), and not the volume, of reviews is the main driver of box office performance (Chintagunta, Gopinath, and Venkataraman, 2010). Chevalier and Mayzlin (2006) found that peoples' reading of online ratings significantly determined book sales; and, high online product ratings increased sales of video games (Zhu and Zhang, 2010).

Research has also shown that certain characteristics of online reviews determine their helpfulness in consumer decision making. For instance, Mudambi and Schuff (2010) found, inter alia, that for experience goods moderate ratings are more helpful and that the depth of reviews has a greater positive effect on helpfulness for search

goods than for experience goods. Cui, Lui, and Guo (2012) found that for new products, the valence of reviews and the volume of page views have a stronger effect on search products; while, the volume of reviews is more important for experience products. Finally, research has also looked into how online reviewers, while leaving a review, are influenced by others' reviews (Sridhar and Srinivasan, 2012). In short then, current research in marketing has and is looking at all different permutations and combinations of the ways that online reviews are affecting consumers' choice and decision-making.

In this current research, we intend to add to this burgeoning stream of investigation by approaching millennials' use of online reviews from a different angle. Specifically, we attempt to show how millennials' online behavior (in terms of time spent online, time spent browsing for/shopping different products, etc.) is likely to have a relationship with their opinion of online reviews. At present, there is a paucity of research in marketing that has examined how millennial consumers' online behavior may predict their views of online reviews. Extant research, for instance, has proposed how the Internet has likely influenced consumers' search behavior (see Peterson and Merino, 2003). This supposition is extended and the proposition advanced herein is that millennials' overall online (including search) behavior is likely to have an effect on how they view online reviews. The following section describes the exploratory method employed to uncover millennials' online behavior and views of online reviews.

Method

In order to elicit responses regarding millennials' internet usage and their opinion of online reviews, two focus group interviews were conducted. Focus group interviews were selected as opposed to individual depth interviews because the focus group interview allows a researcher to "tease out the strength of participant's beliefs and subtleties about the topic that may be missed in individual interviews" (Campbell, 1988).

Based upon the aforementioned literature and conversation among the authors, the following items were generated and included in a focus group outline:

1. The outline
 - a. How many hours per week are you online?
 - b. About how many hours per week are you online....browsing/shopping?
 - c. In the past week, how many products did you browse? Purchase?
 - d. Can you describe the products that you browsed?
 - e. What types of products did you browse?
 - f. In your browsing/shopping, did you read any online reviews and, if so how much did they spend?
 - g. ...would you base your decision to purchase or not to purchase on the review?
-

- h. What are the factors that affect the trustworthiness of online reviews?
- i. Were there any reviews that were most memorable to you? Why?
- j. What would be your reaction to online reviews that were basically neutral (neither positive nor negative)?
- k. Which types of reviews do you pay more attention to negative, positive or both?
- l. Do you have any other comments?

Two focus group interviews were administered, each to a group of ten students. Students were considered appropriate for use as members of the focus group since it has been estimated that approximately 93% of the millennial generation is online and maintain at least one social media account (Neeraj, 2015).

Each focus group interview lasted approximately ninety minutes and was video recorded. Written transcriptions were then prepared from the recordings. The transcriptions were then content analyzed. The coding was a two-step process whereby (1) two independent coders developed the coding categories that would be used for each focus group question and, (2) a second set of independent coders recorded the response frequencies for each coding category by question. The inter-coder agreement for response category frequency were 75.1% for the first focus group and 68.5% for the second focus group. Discrepancies between coders were resolved between the coders through discussion. The question by question category response frequencies were then tabulated for further analysis. As Fern (2001) suggests, quantitative analysis such as counting frequencies can be used to account for characteristics of focus group discussions. For analytical purposes both focus group results were combined into one data base which was then analyzed.

Analysis and Results

Frequency Analysis

The purpose of the research was exploratory and insight into the pattern of responses was gleaned by looking at the frequencies of responses to the focus group questions. Table 1 shows the time focus group participants spent online per week.

Table 1: Time Spent Online Per Week

<i>Hours Online</i>	25 Hours	30 Hours	35 Hours	40 Hours	45 Hours	50 Hours	60 Hours
<i>Frequency</i>	4	4	4	3	3	1	1

Of the time online, focus group participants were asked to indicate how much time they spent browsing for products. Table 2 shows how many hours participants browsed for products online per week.

Table 2: Time Browsing for Products Online Per Week

<i>Hours Browsing</i>	0	5	7	10	15	20
<i>Frequency</i>	1	4	1	4	5	1

Focus group participants were asked to estimate the number of products that they looked at while browsing online. Table 3 shows the frequency and number of products they looked at online.

Table 3: Number of Products Browsed Online Per Week

<i>Number of Products</i>	10	12	15	20	25	30	40	50
<i>Frequency</i>	4	1	2	3	2	5	1	1

Participants were asked the types of products they browsed online. Table 4 shows the frequency and types of products they browsed online.

Table 4: Types of Products Browsed Online

<i>Type of Product</i>	<i>Frequency</i>
Sporting Equipment	3
Games	1
Boots	2
Flights	1
Jackets	1
Technology	2
Apparel	12
Gifts	1
Electronics	6
Music	6
Books	7
Video Games	3
Food	1
Party Supplies	1
Other	3

All participants reported reading online reviews. They were also asked the number of products they purchased in the last week online. Table 5 shows the frequency and number of products that they bought.

Table 5: Number of Products Purchased Online

<i>Number of Products</i>	0	1	2	10
<i>Frequency</i>	6	8	3	1

Participants were asked how much money they spent on the products that they bought. Table 6 shows the frequency and amount spent for their purchases.

Table 6: Amount Spent for Online Purchases

<i>Amount Spent</i>	\$0 - \$10	\$20	\$30 - \$40	\$145	\$500
<i>Frequency</i>	11	1	4	1	1

Participants were asked if they read online reviews as part of their decision making process. Eighteen said they used online reviews and two said that they did not. Next they were asked about the importance of online reviews. The pattern of responses is shown in Table 7.

Table 7: Importance of Online Reviews

<i>Importance</i>	<i>Frequency</i>
Pretty Important	1
Helpful	5
Good For Delivery Time	1
Use My Own Opinion	1
Read Only Negative Reviews	2
If an Expensive Purchase	2
For Unfamiliar Products	3
When Serious About Buying	4
When Undecided	1

Participants were asked about the factors that influence the trustworthiness of online reviews. Table 8 shows the factors that influenced the trustworthiness of online reviews.

Table 8: Factors That Affect the Trustworthiness of Online Reviews

<i>Factor</i>	<i>Frequency</i>
Repeated Concerns	4
Professional Website	3
Highest Number of Responses	6
Number of Positive vs Negative Reviews	4
Review Grammar	5
Majority Rules	5

Participants were asked to specify the factors that made online reviews memorable. Table 9 shows those factors.

Table 9: Factors That Affect the Memorability of Online Reviews

<i>Factor</i>	<i>Frequency</i>
Detailed Review	7
Highlighting the Positive and Negative Aspects	5
Sharing Personal Experiences	3

Participants were asked how they would react if the reviews were essentially neutral. Table 10 illustrates their reactions.

Table 10: Reaction to Neutral Online Reviews

<i>Reaction</i>	<i>Frequency</i>
Ask People Familiar With the Product	7
Use Brand Name	3
Use Price	1
Re-evaluate the Decision to Buy	6

Participants were asked whether online reviews influenced their purchase decisions. Ten participants reported that online reviews influenced their purchase decisions and six reported that it depended on the type of product they were buying. Next, participants were asked whether they believed negative or positive online reviews were more important for their purchase decision making. Table 11 presents their responses.

Table 11: Importance of Negative or Positive Online Reviews for Decision Making

<i>Importance</i>	<i>Frequency</i>
Negative Reviews	8
Positive Reviews	2
Both Positive and Negative Reviews	2
Depends on Price	1
Depends on Balance	2

In summary, the majority of focus group members reported spending 35 hours or less online per week, spending 10 hours or less of that time browsing for products. Most participants browsed for 10 products or less during their browsing time looking at apparel, books, music and electronics. Their purchases were few (0 to 1 product) and inexpensive (\$10 or below). Focus group participants felt that online reviews were helpful in their decision making especially when they were serious about

buying. The trustworthiness of online reviews were influenced by factors such as repeated concerns, the professionalism of the website, the number of reviews, the number of positive versus negative reviews and review grammar. Factors that influenced the memorability of online reviews included the amount of detail included in the review, reviews that highlighted the positive and negative aspects of the product and those reviews that shared personal experiences with the product.

Participants reported handling essentially neutral reviews by asking people that were familiar with the product, using brand names, using price, and re-evaluating their decision to buy. Finally, most participants reported that negative reviews were more important than positive reviews for decision making but price may be a moderator.

Correspondence Analysis

Correspondence analysis (CA) is an exploratory technique that looks for patterns in categorical data using two-way or multi-way tables with each row and column becoming a point on a multidimensional graphical map or bi-plot (Greenacre, 1993, Doey and Kurta, 2011). The goal of CA is to explain the most variance in the data (called inertia) using the smallest number of dimensions. In this sense then, CA is similar to principal component factor analysis, except for categorical data. Hoffman and Franke (1986) identified several features of CA that contribute to its usefulness to marketing researchers. First, the technique allows for the simultaneous analysis of multiple categorical variables. Second, CA can reveal relationships that would not be detected in a series of pairwise comparisons of variables. Third, CA not only shows that variables are related but also how those variables are related. Finally, CA has very liberal data requirements, necessitating only a rectangular data matrix containing non-negative values.

In order to probe more deeply into the data two-way correspondence analyses were conducted. Since the correspondence analyses are being presented here for expository purposes, only significant results are being reported and it is acknowledged that statistical significance is difficult to achieve with such a small sample size as two, ten member focus groups. The purpose of the correspondence analyses was to explore possible relationships between time spent online per week and the other behavioral issues discussed during the focus group meetings.

The first statistically significant correspondence analysis was between participant's time per week spent online and the number of products that they perused ($\chi^2 = 73.48$, $df = 49$, $p = .013$). The relationship between time spent online and number of products perused is shown in Figure 1.

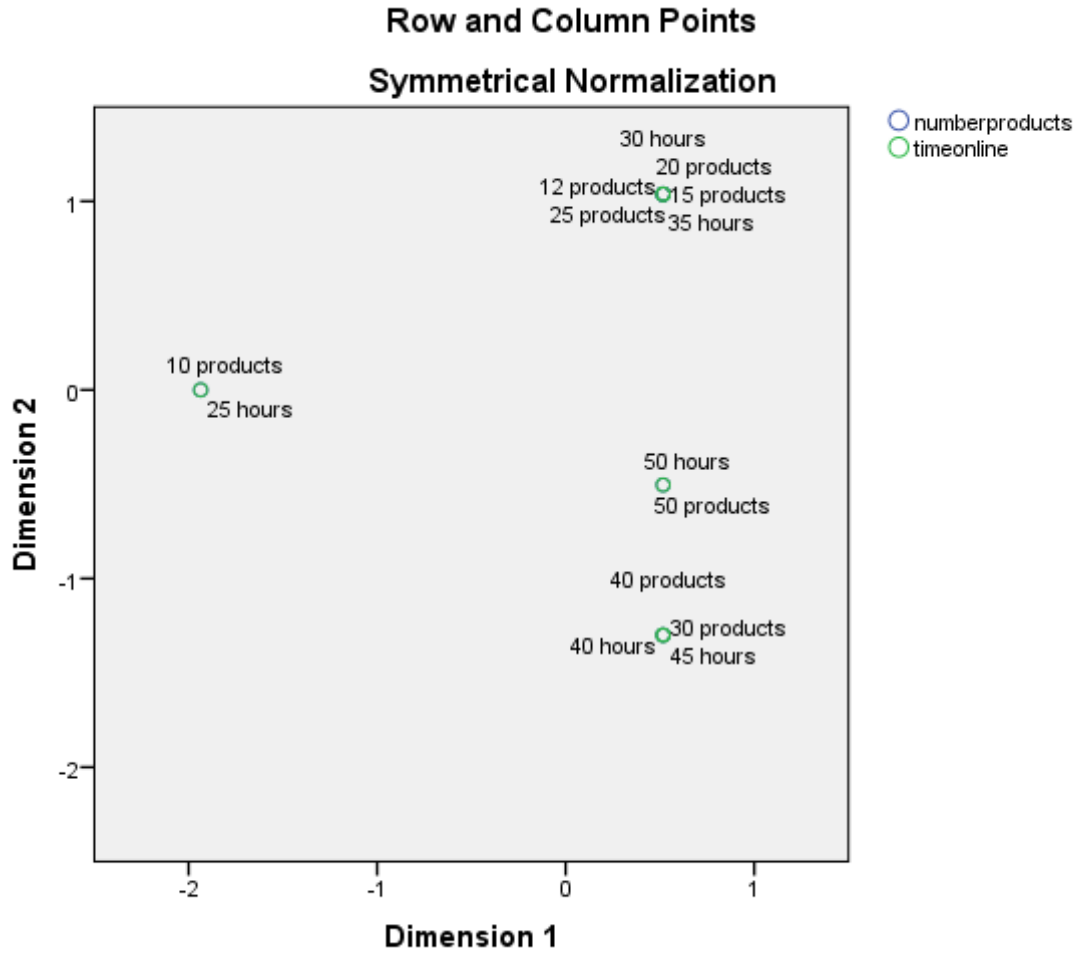


Figure 1. Relationship Between Time Online and Number of Products Perused

As Figure 1 shows, those focus group participants that reported being online 25 hours per week tend to look at 10 products, those reporting spending 30-35 hours online look at 12 to 25 products, those spending 40 to 45 hours online look at 30 to 40 products and those that spend 50 hours online looked at 50 products.

A second correspondence analysis explored the relationship between time spent online and factors that influenced the trustworthiness of online reviews ($\chi^2 = 59.16$, $df = 35$, $p = .007$). Figure 2 presents the results.

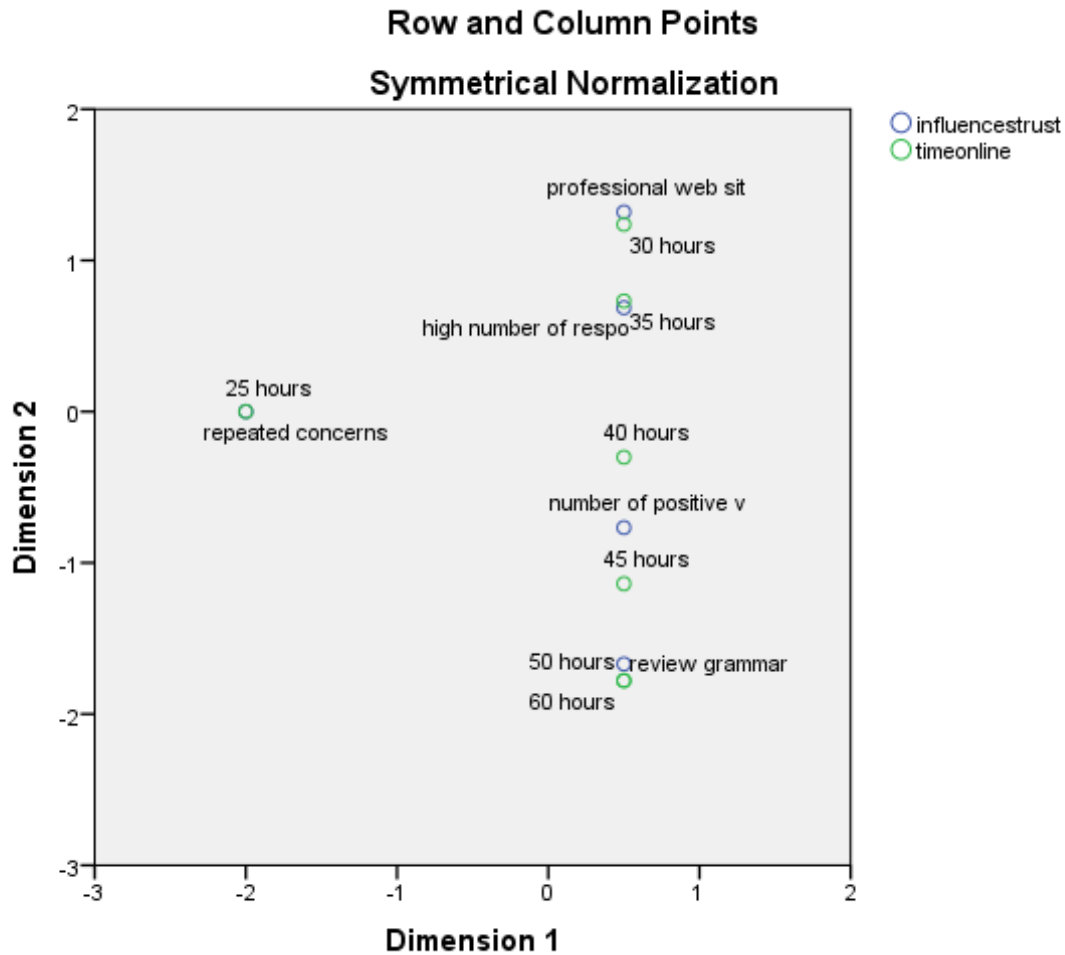


Figure 2: Relationship Between Time Online and Review Trustworthiness

As Figure 2 shows, the greater the repeated product concerns the more trustworthy the online reviews were for those online 20 hours per week. Those online 30 hours per week reported that online review trustworthiness was enhanced by the professionalism of the website. Those online 35 hours per week reported that a large number of online reviews influenced trustworthiness. Those online 40 to 45 hours per week thought that the balance between positive and negative online reviews influenced trustworthiness. Finally, those online 50 to 60 hours felt that online review grammar influenced review trustworthiness.

A third correspondence analysis looked at the relationship between weekly time spent online and factors that make a memorable review ($\chi^2 = 26.14, df = 14, p = .025$). The results are presented in Figure 3.

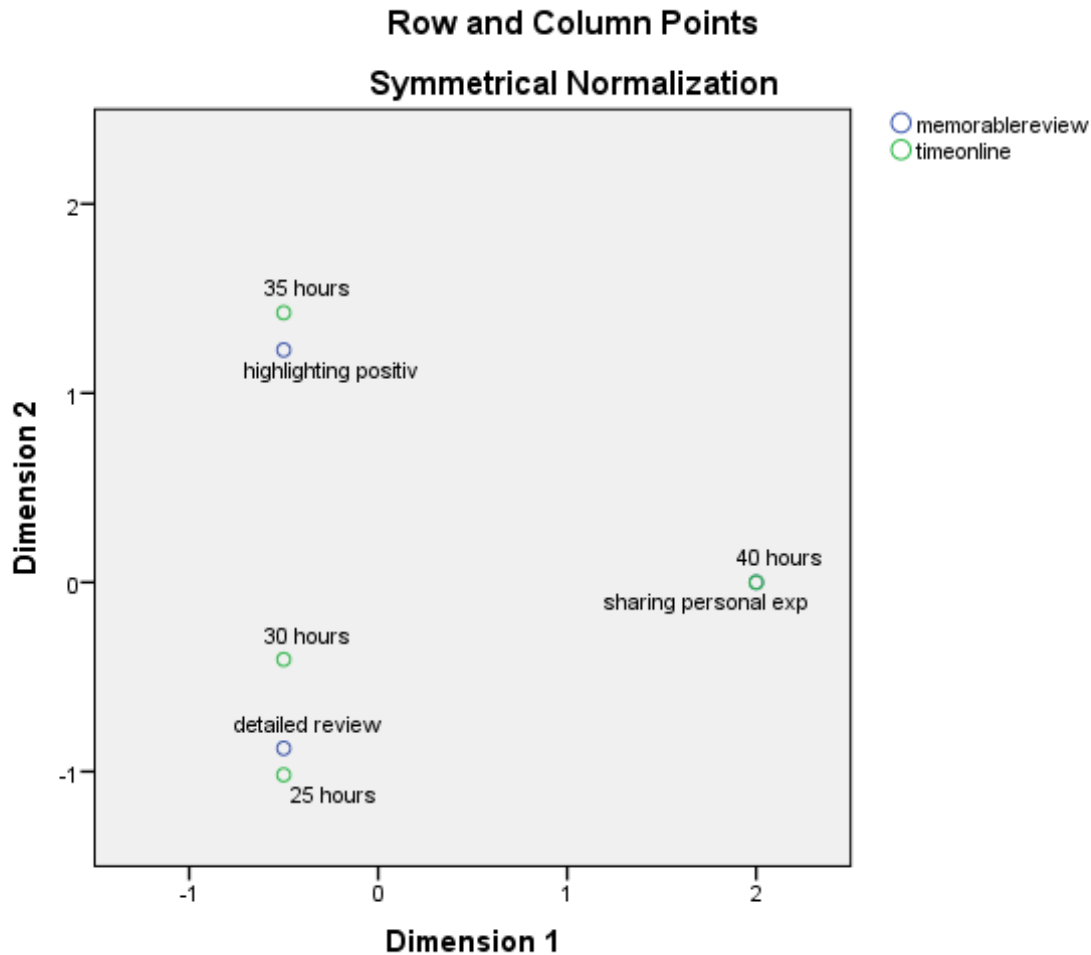


Figure 3: Relationship Between Time Online and Review Memorability

As Figure 3 shows, focus group participants spending 25 to 30 hours online weekly believed that more detailed online reviews were more memorable. Those spending 35 hours per week said that reviews that highlighted the positive and negative aspects of products were more memorable. Finally, those participants spending 40 hours online per week reported that sharing personal experiences with the product made for more memorable online reviews.

In summary, correspondence analysis applied to the focus group data uncovered relationships that might otherwise be obfuscated by the relatively large number of categories for associated with each of the variables using other analytical procedures. The CA results presented here were derived from two, ten member focus groups. Such a small sample size made it hard to detect statistically significant relationships even though the bi-plots looked as though there were relationships between variables.

Conclusions and Future Directions

In summary, this research explored the relationship between millennials' online behavior and their opinions about online reviews. Millennials felt that online reviews were helpful in their decision making especially when they were serious about buying. The trustworthiness of online reviews were influenced by factors such as repeated concerns, the professionalism of the website, the number of reviews, the number of positive versus negative reviews and review grammar. Factors that influenced the memorability of online reviews included the amount of detail included in the review, reviews that highlighted the positive and negative aspects of the product and those reviews that shared personal experiences with the product. The correspondence analysis results found relationships between millennials' time online and the number of products they perused online as well as factors influencing review trustworthiness and review memorability.

The limitation of this research suggests directions for future research. Additional exploratory research via focus groups should be conducted to enhance the sample size. Structured surveys should be administered to a large group of millennials to explore additional relationships between their use of the internet and opinions toward online reviews. Finally, experimental designs should be employed to determine causal links between millennial internet behavior and how online reviews are used in their consumer decision making.

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