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## Vegetarian, Vegan, and Pescetarian Consumers and Their Participation in the Green Movement

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VEGETARIAN, VEGAN, AND PES CETARIAN CONSUMERS AND THEIR  
PARTICIPATION IN THE GREEN MOVEMENT

by

CORY T. KING

A thesis submitted in partial fulfillment of the requirements  
for the Honors in the Major Program in Marketing  
in the College of Business Administration  
and in the Burnett Honors College  
at the University of Central Florida  
Orlando, Florida

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Thesis Chair: Dr. Carolyn Massiah

## **ABSTRACT**

Entering into the 21<sup>st</sup> century, sustainable living has become a popular topic of concern for scientists and engineers, politicians, news reporters and individuals alike. Most importantly though, sustainable living has become popular to the modern consumer, and many firms are attempting to understand and cater their efforts to the ecologically conscious consumer. Previous studies have shown that the use of psychographics, as opposed to demographics, result in more significant results that can help firms identify ecologically conscious consumers.

The purpose of this thesis is to examine the relationship between consumers who identify as pescetarian, vegetarian, or vegan, and their respective participation in the green movement in terms of their pro-environmental attitudes and their purchase behaviors. Consumers' reason for choosing an alternative diet, their relative commitment to the alternative diet, as well as their level of green participation based on the New Ecological Paradigm (NEP) scale and the Ecologically Conscious Consumer Behavior (ECCB) scale was measure and analyzed. Additionally, a conclusion and discussion of the study, potential marketing implications, and suggestions for future studies will be reviewed.

## **DEDICATIONS**

To my family, who has supported me in all of my endeavors.

To my professors, who have inspired me and supplied me with the knowledge I required to take on this project.

To my committee members, who made themselves available in any way they could to facilitate my progress.

To my friends, who helped me in any way they could.

To the vegetarians, vegans, and pescetarians, who so kindly aided in this study.

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## INTRODUCTION

The Industrial Revolution approximately began during the 1760's and continued for nearly seventy years bearing into existence machines and production processes that greatly enhanced and transformed the output and capabilities of every industry at the time. Nearly two hundred years of constantly evolving technology and trying to meet the ever-increasing demand of the growing global economy we are seeing the consequences of the revolution, and the unsustainable business models we enforce, in the form of climate change. Though many individuals claim there is not enough proof to support the theory of Global Warming, there is data supporting climate change. Data from the National Climatic Data Center (NCDC) of the National Oceanic and Atmospheric Administration (NOAA) show that global surface temperatures have increased about 0.74 °C (+/- 0.18 °C) since the late 19th century, and “seven of the eight warmest years on record have occurred since 2001 and the ten warmest years have all occurred since 1995” (<https://www.ncdc.noaa.gov/monitoring-references/faq/global-warming.php>). The earth is kept warm and habitable because of the phenomenon known as the greenhouse effect where certain gases in the atmosphere absorb and hold heat from the sun. Production processes focused on increasing business and economic growth have resulted in exceedingly negative ramifications such as environmental degradation and deficiencies of clean water, air, and land. Despite such consequences, as of 2010 coal and oil collectively accounted for 63.2% of global energy consumption magnifying climatic conditions (Seung-soo, 2012). Though many developed countries have created emission regulations for manufacturing companies, still others have not complied in any significant reduction.



The initial beginnings of the green movement are often linked to the publications of Rachel Carson and her book “Silent Spring,” in particular. Others trace environmentalism back to the 19th century where intellectual thought such as Transcendentalism (including its leaders such as Henry David Thoreau in his book “Maine Woods”) and American pragmatism first emerged. Regardless, events of the twentieth century such as the 1948 disaster at Donora, the outlawing of DDT, and multiple oil spills have prompted political officials to comply with the many requests of American individuals to regulate human impact on the environment. Most recently, the air pollution epidemic sweeping over Beijing and the rest of northern China has caused officials in the country to finally declare a “war on pollution” after fine particulate matter reached levels sixteen times greater than the recommended upper limit. Additionally, global economies in much of Europe and the United States have struggled to promote economic growth, create employment opportunities for a large unemployed population, and manage inflation since the financial crisis of 2008. What stands before the global inhabitants of today are two challenges: climate change and economic decline.

Investment in green businesses and sustainable growth can yield a solution that effectively counters both of these challenges. Advancement in green technology would not only provide employment opportunities, but would also aid in limiting the dangerous greenhouse gas emissions that are likely attributing to recent climate change. Realistically, in order to begin the development of green technology, firms must raise capital to invest in the development of such technology and political policies must be created and enforced that support sustainable practices by firms. A crucial step to this process would be to identify consumers who would be supportive of a firm’s decision to transition to sustainable practices and be willing to purchase the products

and services a firm would offer from this transition. The consumers who would be most responsive would likely be ecologically conscious, or “green,” individuals. The purpose of this study is to build off of existing research attempting to identify green consumers through psychographic segmentation.

## LITERATURE REVIEW

With the green movement growing, businesses began to appeal to their environmentally conscious customers. Many studies have tried to find demographic information on these green consumers, but correlation at a significant level in a study, as “Environmental Segmentation Alternatives: A Look at Green Consumer Behavior in the New Millennium” notes, was not always reliable, as there was most likely another study that had negative correlation at a significant level (Robert, Straughan, 1999). This is a problem for firms who are trying to cater to green consumers, as they do not know how to identify any sort of market segment to target. However, there have been successes in multiple studies researching psychographic information of ecologically conscious consumers. For example, it is more likely for individuals who have liberal political opinions, or individuals who have altruistic characteristics, to behave in an ecologically sustainable manner (Robert, Straughan, 1999). One of the best indicators of ecologically conscious consumer behavior is the attitude or belief that a consumer could have a positive impact on ecological concerns. Robert and Straughan (1999) termed this belief or attitude as PCE, or perceived consumer effectiveness. If a firm was able to appeal to a consumer’s environmental PCE, then it would be targeting the green consumers they could not originally identify by demographics and other attributes. With ever-growing environmental concerns, and the recent boom of organic foods, many companies could find profit, as well as sustainability, by engaging in green marketing and green business.

In another attempt to gain insight to types of consumers that would be more receptive to green business, the article “Purchasing Organic Food in U.S. Food Systems” studied consumers of organic foods (Onyango et al, 2007). Logically, people who encourage and support organic

products are conscious of their own well-being and health, and therefore would seem more likely to be conscious of the well-being and health of the environment because organic products minimize harm done to the environment by avoiding harsh chemicals and treatments. Results from the study indicated that more females and young people buy organics on a regular basis, as do more liberal and moderately religious respondents.

Stemming from individuals who purchase and consume organic foods, interest in consumers with altered diets, specifically individuals who identified as a type of vegetarian, introduced a population that has received little research concerning purchase behaviors and general consumer attributes. A two-part study was conducted on individuals identifying as vegetarian: their reason for becoming a vegetarian and “attitudinal, personality, and demographic characteristics” that may potentially shape an individual’s vegetarian-oriented attitudes and behavior (Janda et al, 2001). This article introduced the idea of categorizing vegetarians based on their reasons for participating in the lifestyle which was further elaborated in the article “Adrift in the Mainstream: Challenges Facing the U.K. Vegetarian Movement” (Smart, 2004) From this paper, our categorization of vegetarians became more specific and took the binary form of either moral/ethical reasons or non-moral/lifestyle reasons such as health or taste. Religion was also mentioned as a reasoning for in individual identifying as vegetarian in previous studies, however, for the sake of simplicity it was omitted from this particular study.

## **HYPOTHESES**

In this study, from now on we will use the term “committed” to refer to how restrictive a diet is in comparison to the other two diets and we will use the term “vegetarian” as an all-encompassing term to refer to the three diets included in this study. Additionally, to avoid confusion, we will also use the term “lacto-ovo vegetarian(s)(ism)” to refer to the specific diet that is measured in comparison to pescetarian(s)(ism) and vegan(s)(ism).

We believe there to be a significant correlation between consumers’ diets and their active participation in the green movement. More specifically, we believe there to be three specific correlations intertwining vegetarian diets and participation in the green movement as can be seen in Figure 1. First, we want to examine the relationship between the individual’s reasons for becoming vegetarian and how “committed” they are to their vegetarian lifestyle. Therefore, pescetarians are considered to have a “low commitment” diet because they consume meat protein in the form of fish and other seafood, lacto-ovo vegetarians are considered to have a “moderate commitment” diet because though they do not consume meat protein they still eat animal byproducts such as dairy and eggs, and vegans are considered to have a “high commitment” diet because they do not consume any sort of meat protein nor any sort of animal by-products, edible or non-edible, including all dairy products, eggs, gelatin, honey, wool products, leather, etc. It seems logical to think that if the individuals’ reasoning for becoming vegetarian is more rooted in moral/ethical grounds, like supporting animal welfare or decreasing environmental degradation, then the individual would be more committed to their vegetarian diet. This also assumes that individuals who are vegetarians for health benefits, taste preferences, and/or

monetary reasons would be less committed to the lifestyle because these reasons are considered non-moral.

The second concept we want to analyze is the relationship between an individual's level of commitment to a vegetarian diet and their level of participation in the green movement. Again, it is logical to think that the individuals more committed to vegetarianism, which would be individuals identifying as vegetarian or vegan, would be more inclined to have pro-environmental attitudes and green purchase behaviors.

The third and final relationship of interest is the relationship between an individual's reasons for becoming vegetarian and how actively they participate in the green movement regardless of their level of commitment to their vegetarian lifestyle.

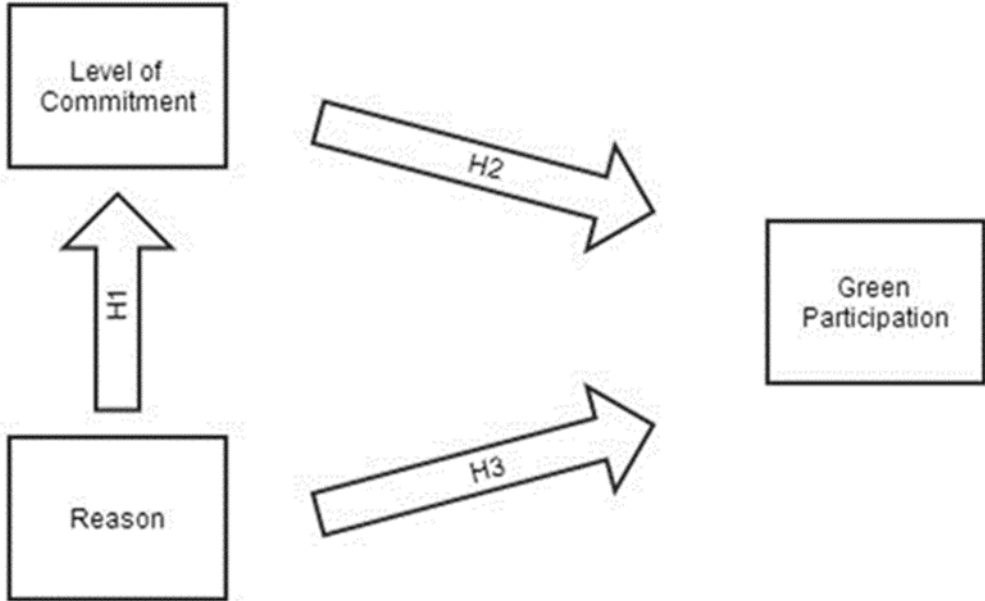


Figure 1 Research Design

From these three relationships we will be testing three hypotheses. With respect to an individual's grounds for becoming a vegetarian and their level of commitment to the lifestyle we get our first hypothesis.

H<sub>1</sub> : Individuals with moral or ethical reasons for engaging in a vegetarian lifestyle will be more likely to have a higher level of commitment to the diet.

Considering an individual's level of commitment to their vegetarian lifestyle and their level of participation in the green movement we get our second hypothesis.

H<sub>2</sub> : Individuals with a higher level of commitment to their vegetarian diet will be more likely to participate more in the green movement.

Finally, concerning an individual's grounds for becoming a vegetarian and their level of participation in the green movement we get our third hypothesis.

H<sub>3</sub> : Individuals with moral or ethical reasons for engaging in a vegetarian lifestyle will be more likely to participate more in the green movement.

## METHODOLOGY

The data was collected during the month of February, 2014 from approximately 175 volunteer participants resulting with a total of 109 valid survey results. The participants were contacted through posts on various forms of social media including Facebook and Tumblr that included a URL address that redirected the participants to an online version of the survey hosted by Qualtrics. The posts on Facebook specifically were target to local and state organizations for vegetarian and vegan individuals. The main Facebook groups contacted are called “Vegetarians of Central Florida,” and “Vegan Florida.” Additionally, the URL with survey directions printed on to slips of paper were handed out to potential participants who visited a vegan café in Daytona, Florida called “Kale Café Juice Bar & Vegan Bistro” on February 8<sup>th</sup>, 2014. It should be noted that due to the specific groups contacted and reached, the majority of the survey participants are current residents of Florida. The survey hosted by Qualtrics collected survey data for nearly two weeks starting from February 6<sup>th</sup> to approximately February 23<sup>th</sup>.

The survey allowed participants to self-identify as either pescetarian, lacto-ovo vegetarian, or vegan to discern the individual’s level of commitment to their vegetarian diet and asked a series of questions to discern whether the individual chose their vegetarian diet for moral or non-moral reasons. Additionally, the survey consisted of two previously created scales to measure the participants’ level of green participation. A scale known as the New Environmental Paradigm (from now on referred to as the NEP scale) which was created by R.E. Dunlap and K.D. Van Liere in their study “The ‘New Environmental Paradigm’: A Proposed Measuring of Instrument and Preliminary Results,” was utilized to measure the pro-environmental behavior of participants. A scale known as the Ecologically Conscious Consumer Behavior scale (from now



on referred to as the ECCB scale) was created by James A. Roberts in his doctoral dissertation titled "The Development of a Profile of the Socially Responsible Consumer for the 1990s and Its Marketing Management and Public Policy Implications," was used to measure the green purchasing behavior of participants. The NEP scale consisted of fifteen statements that individuals responded to in a Likert scale format while the ECCB scale consisted of thirty statements that individuals also responded to in a Likert scale format. This resulted in a complete analysis, including both the beliefs and actions, of an individual's green participation.

In order to test our hypotheses, we used a 2 by 3 between subjects two-way ANOVA statistical evaluation. The study is considered to be "between subjects" because data was only collected once for each individual rather than multiple times wherein it would become "within subjects."

## **RESULTS AND DISCUSSION**

The sample this study analyzed consisted of 109 valid participants who self-identified as either pescetarian, lacto-ovo vegetarian, or vegan. Of the participants, nearly 80% were female and 20% were male. This extremely unequal distribution is due to many of the male participants being eliminated from the sample for incomplete survey responses. Approximately half of the participants were between the ages of 21 and 40 years old, and about three-quarters were between the ages of 13 and 40. Half of the participants fell into income bracket of \$20,000 and under, however, this should be considered with caution because this most likely occurred in part due to the large amount of college students that participated in the survey. Also, half of the participants have identified as one of the vegetarian diets for one to five years, and over 20% have identified as one of the vegetarian diets for longer than ten years.

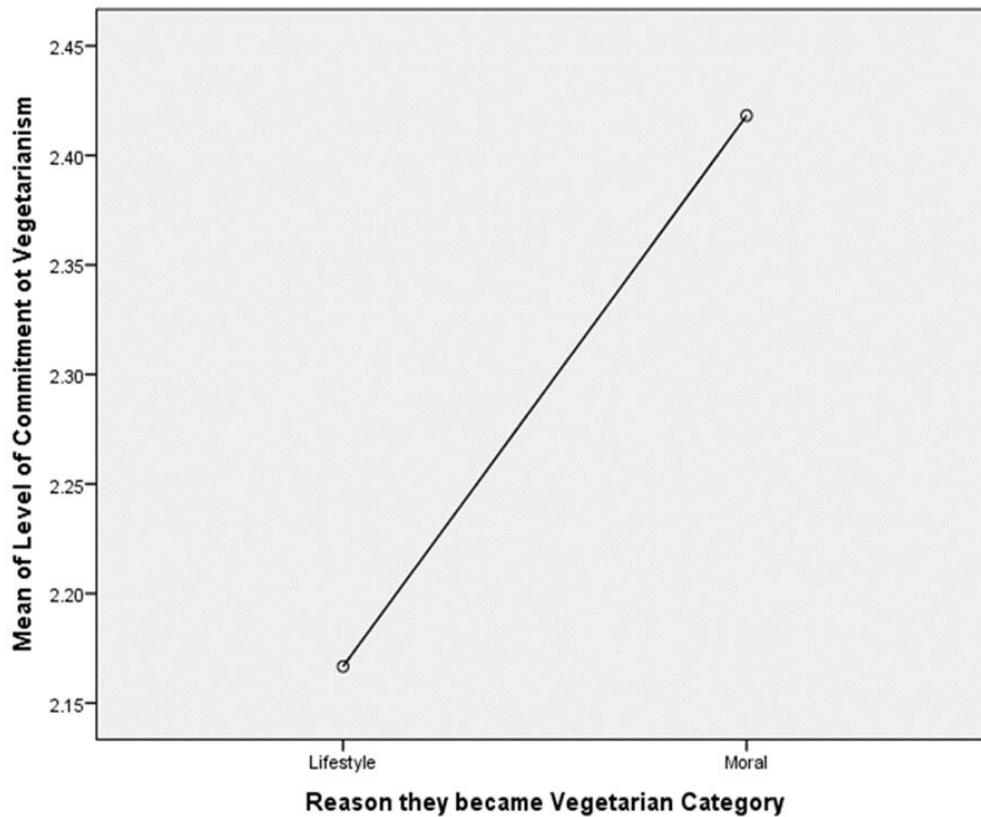
Referring to the data relevant to our hypotheses, of the 109 participants, 20 individuals self-identified as pescetarian which this study considers a “low commitment” diet (18.3%), 37 individuals self-identified as the “moderate commitment” lacto-ovo vegetarian (33.9%) and the remaining 52 participants self-identified as “high commitment” vegans (47.7%). Interestingly, the sample population was equally distributed between having moral reasons for choosing their vegetarian lifestyle and having non-moral reasons. If we were to speculate a reason for why this occurred other than coincidence, we could perhaps say that while vegetarian lifestyles were once more commonly rooted in moral grounds as statements against the cruel treatment of animals in the meat industry, in recent times the diets may have become more popular due to non-moral reasons. These non-moral reasons could include the previously stated concerns such as health and individuals becoming more aware of the contents and sources of the food items they

consume. However, from our data we cannot determine whether the equal distribution is due to an overall trend, or just the result of this particular sample. Finally, the data shows that both the NEP scale and the ECCB scale are reliable and internally consistent in measuring the pro-environmental attitudes and green purchase behaviors of the sample by their alphas of 0.76 and 0.96, respectively.

For our first hypothesis we stated that

H<sub>1</sub> : Individuals with moral or ethical reasons for engaging in a vegetarian lifestyle will be more likely to have a higher level of commitment to the diet.

The data results did not support H<sub>1</sub> at significant levels with a p value of 0.085, however there is a general trend in the data that does fall in line with the hypothesis as can be seen in the figure below. Additionally, the term “lifestyle” is used interchangeably with “non-moral” in terms of the reason an individual chose their vegetarian diet.

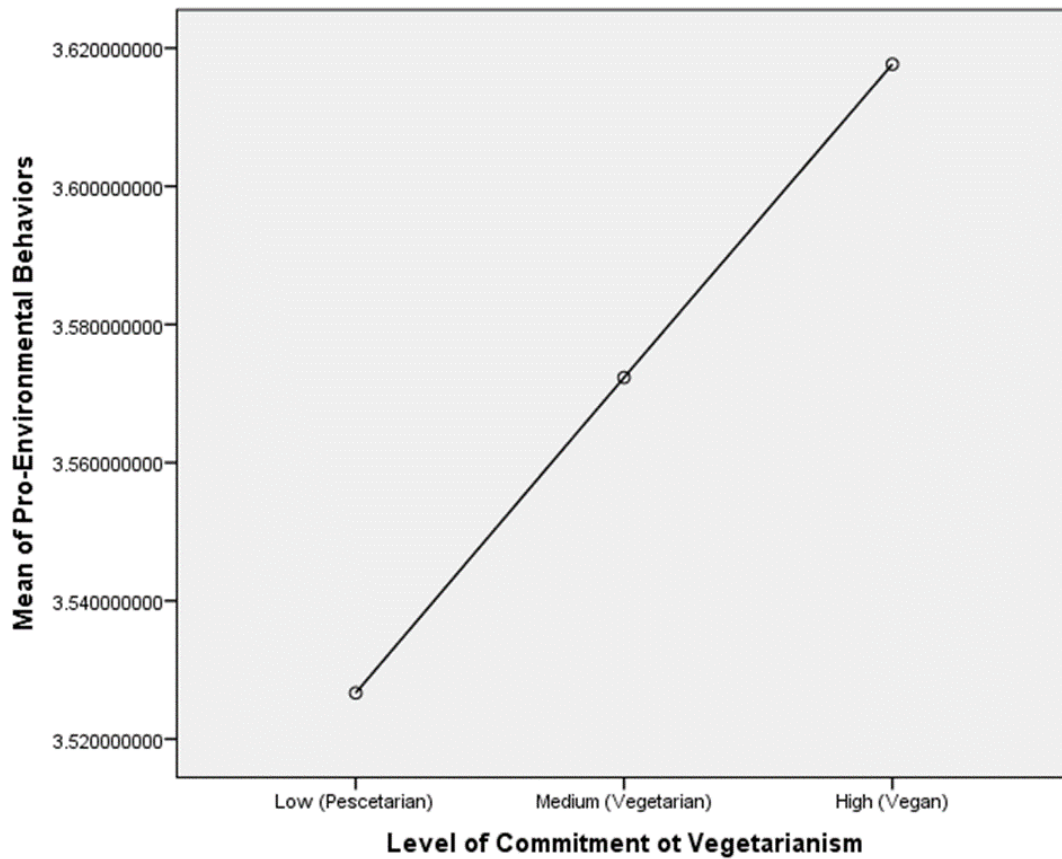


*Figure 2 Graphical Depiction of H<sub>1</sub>*

The following hypotheses, H<sub>2</sub> and H<sub>3</sub>, include green participation as part of the relationship analyzed by these hypotheses and therefore have two graphs displaying the data trends of each: one using the NEP scale and one using the ECCB scale.

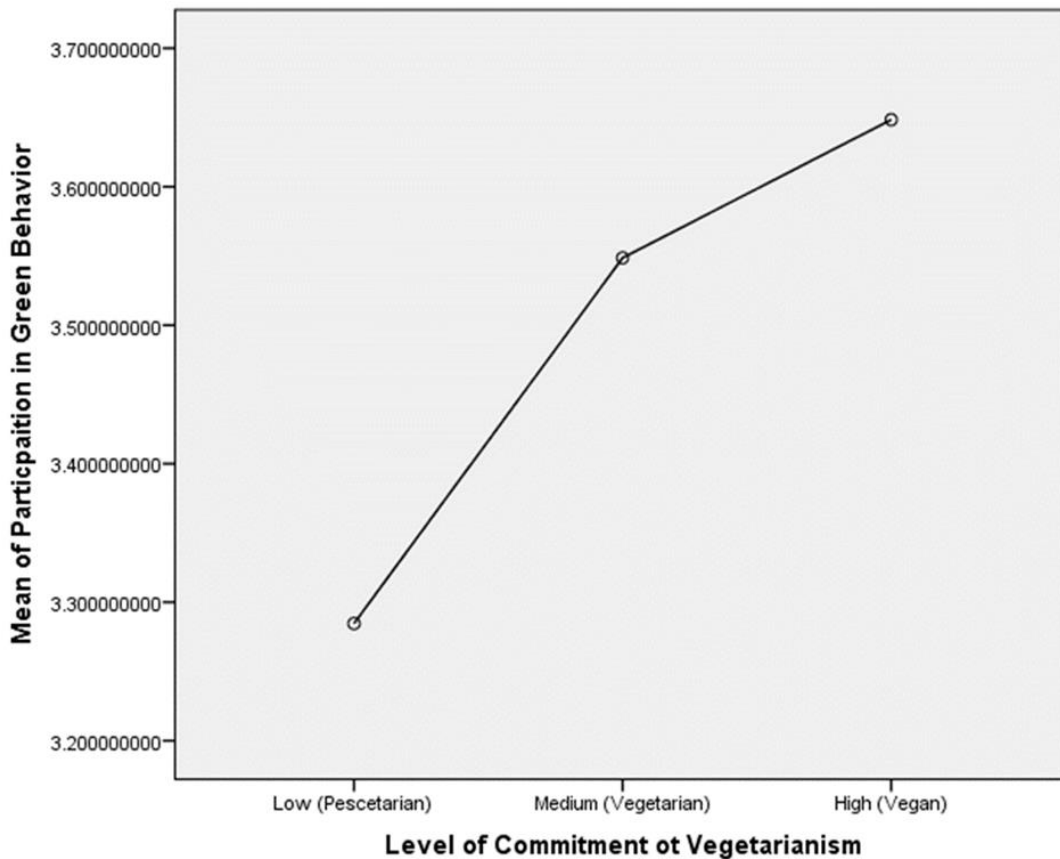
H<sub>2</sub> : Individuals with a higher level of commitment to their vegetarian diet will be more likely to participate more in the green movement.

Again, the data did not support this hypothesis at any significant levels with a p value of 0.456 for the level of commitment examined against pro-environmental behaviors measured by the NEP scale. As in H<sub>1</sub>, there is a general trend in the data that can be seen to represent H<sub>2</sub> and can be seen in the figure below.



*Figure 3 Graphical Depiction of H<sub>2</sub> Using NEP Scale*

The p value for the level of commitment examined against green purchase behaviors (the ECCB scale) was 0.232 and therefore was also not significant. In the following figure, there is a general trend that represents H<sub>2</sub>.



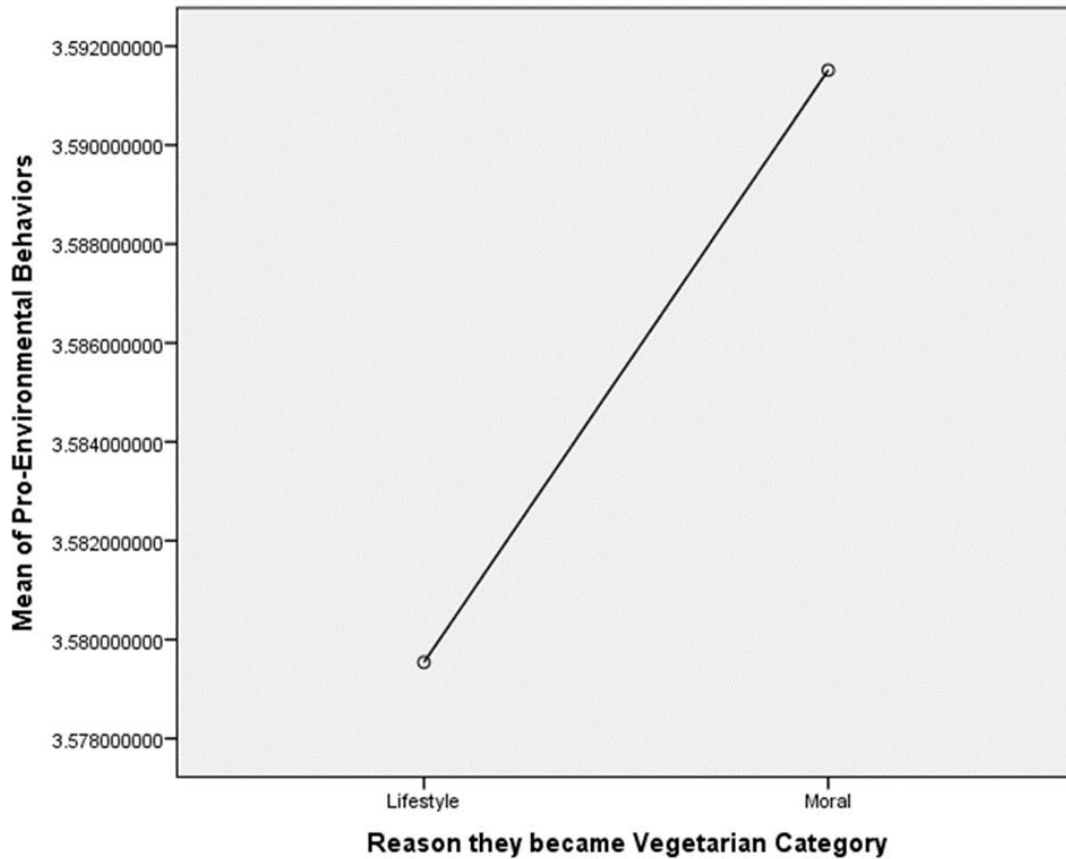
*Figure 4 Graphical Depiction of H<sub>2</sub> Using ECCB Scale*

Our final hypothesis states that

H<sub>3</sub> : Individuals with moral or ethical reasons for engaging in a vegetarian lifestyle will be more likely to participate in the green movement.

Similarly to the previous two hypotheses and results, H<sub>3</sub> was not supported by statistically significant p values. The p value exploring the relationship between the reason individuals became vegetarian, either moral or non-moral/lifestyle, and pro-environmental behaviors was 0.828. For this component of the hypothesis, not only was there no statistically significant results, there was no general trend in the data either. Though the figure below shows a

steep slope in the line, the range of the graph spans approximately 0.01 units; however, if displayed with a larger y-axis scale, the line would be nearly horizontal.



*Figure 5 Graphical Depiction of H<sub>3</sub> Using NEP Scale*

The p value of the relationship between the reason individuals became vegetarian and their green purchase behaviors was 0.943. This component of H<sub>3</sub> also did not present any significance nor general trends. The figure below should be viewed with the same regards as the previous figure, wherein though the slope of the graph appears to be steep, upon inspection of the scale, the range is miniscule and the line should be regarded as horizontal. Additionally, due to this, the inverted slope of this figure should be completely disregarded.

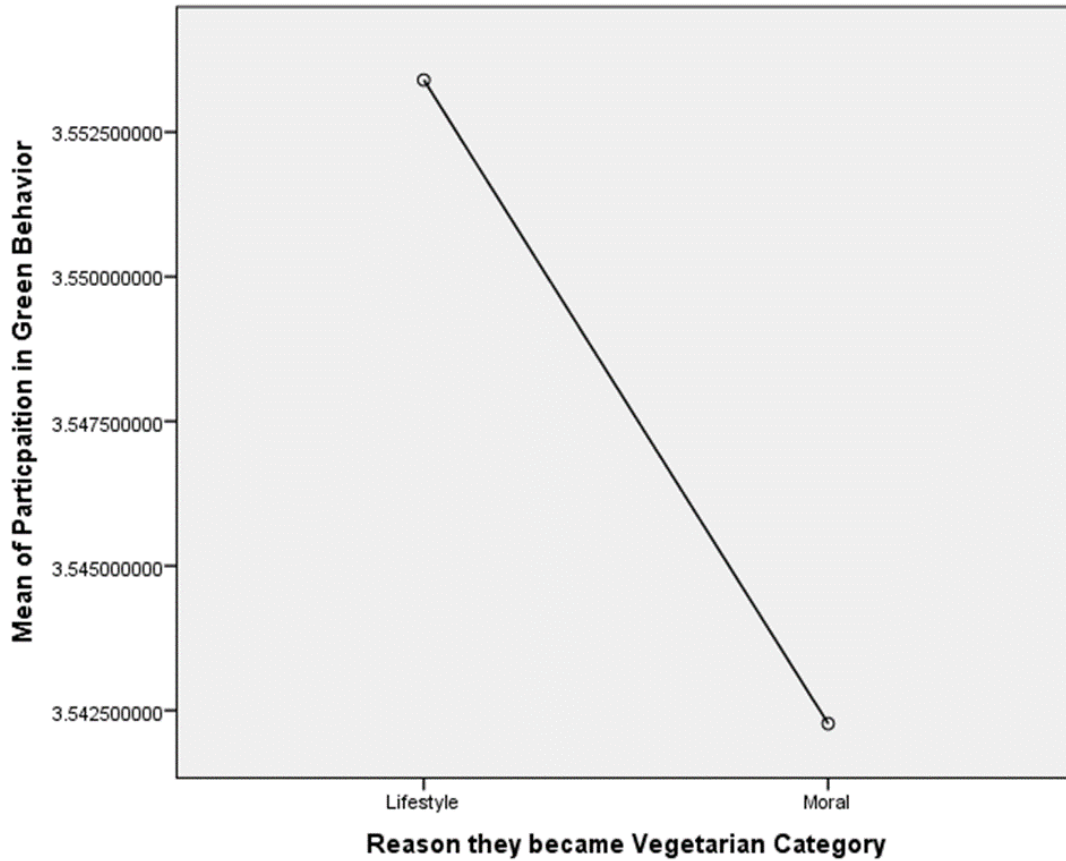


Figure 6 Graphical Depiction of  $H_3$  Using ECCB Scale

Because this study did not find any statistical significance from our sample data and analysis, we are not able to declare with certainty that there is any real difference between the vegetarian lifestyles known as pescetarianism, lacto-ovo vegetarianism, and veganism, in terms of the self-identified individuals of a certain diet or lifestyle being more likely to participate in the green movement. Subsequently, none of our hypotheses were supported, meaning that the reason an individual chose a vegetarian lifestyle had no effect on their level of commitment to the vegetarian diet nor their level of green participation, and an individual's level of commitment to their diet had no effect on their level of green participation.



However, two of our hypotheses were seen to be supported, though not significantly, but rather by the general trend of the data. H<sub>1</sub> stated that “Individuals with moral or ethical reasons for engaging in a vegetarian lifestyle will be more likely to have a higher level of commitment to the diet.” As can be seen in Figure 2, the relative trend of the data shows that individuals who chose their vegetarian lifestyle for non-moral or lifestyle reasons were more likely to have a lower level of commitment and self-identify as either pescetarian or lacto-ovo vegetarian, while individuals who chose their vegetarian lifestyle on moral grounds were more likely to have a higher level of commitment and self-identify as either lacto-ovo vegetarian or vegan. H<sub>2</sub> predicted that “Individuals with a higher level of commitment to their vegetarian diet will be more likely to participate more in the green movement.” From Figure 3 and Figure 4 which depict the general trend of the data for the two scales used to measure green participation for H<sub>2</sub>, it can be seen that individuals who had a lower level of commitment and self-identified as either pescetarian or lacto-ovo vegetarian were less likely to have pro-environmental attitudes and also less likely to have green purchase behaviors than individuals who had a higher level of commitment to their vegetarian diet and self-identified as either lacto-ovo vegetarian or vegan.

There are several factors of the study that could have resulted in the lack of significant results from our survey data analysis. Most notably, this study did not have a particularly large sample size and therefore the chances of random error were greater and could have had an effect on the overall analysis. With a larger sample size, the random error that occurs in all statistical analyses would have been decreased and allow proper investigation of the relationships of this study. Second, there was extremely unequal gender distribution (80% females, 20% males) that occurred in the sample population of this study. Upon review of the invalid or unfinished survey

data, many of the individuals were male and therefore were not equally represented with the females who did complete the survey. Third, the distribution between the three vegetarian diets analyzed were unequally distributed with 20 self-identified pescetarians (18.3%), 37 self-identified lacto-ovo vegetarians (33.9%), and 52 self-identified vegans (47.7%). As with gender, a more equal distribution of individuals who identified as one of the vegetarian diets considered in this study would have decreased, if not eliminated, any over- or underrepresentation of any of the diets that may have skewed the results. Finally, due to the time and budget limitation of this study, the sample population for this study is mainly Florida residents. It is highly probable that the participants creating our sample population are not a good representation of the state of Florida, nor the nation as a whole, and perhaps influenced the occurrence of non-significant results in the statistical analysis.

## **MARKETING IMPLICATIONS**

Due to the lack of statistically significant results from the data analysis, none of our hypotheses were supported and therefore we cannot make any marketing implications from them. However, there were many insights into the vegetarian consumer population from the process of this study. As mentioned previously, the participants were contacted through posts on various form of social media, the main two being Facebook and Tumblr. On Facebook, the individuals contacted were either a part of the local vegetarian group called “Vegetarians of Central Florida,” or the state-wide group called “Vegan Florida.” After the survey collection period, we were able to continue to observe the interactions of the members of these groups over the popular social media sites. Surprisingly, it was noted that the most common posts or updates published to the groups’ feeds were some form of word of mouth marketing. From posts referring to vegetarian or vegan friendly blogs that post recipes, current event articles that individuals believe the group members will find interesting, or asking for recommended restaurants in particular areas (not just in Florida), members of these groups posted, and were frequently exposed to posts, that engaged in word of mouth marketing. From this information a firm could infer that if they were able to satisfy or serve an individual of one of these local Facebook groups particularly well, there is a high probability that the individual will recommend other vegetarian consumers to visit or support the business. With the population of vegetarians being just a small fraction of the nation’s total population, the word of mouth marketing can be a very inexpensive and very well targeted source of marketing for the firm. Additionally, by targeting to these social media groups, firms can reach these consumers in a quicker, more cost-effective way than general mass media attempts.

The survey that was used to collect data from the sample population also included a set of questions that asked how frequently the participants eat out at vegetarian restaurants. Out of the 109 participants, 41 people ate out every couple of months (3.6%), 21 people ate out at least once a month (19.3%), 24 people ate out more than once a month (22.0%) compared to the 14 people who ate out at least once a week (12.8%), and finally 8 people ate out more than once a week (7.3%). This question was included in the section of the survey that asked demographic information about the participants in order to inform whatever vegetarian or vegan-styled restaurants that helped us collect survey data from their customers on the frequency that they ate out. These restaurants could use this information in the planning of local events and promotional campaigns and design the programs to be more effective in how regularly they hold them.

Mentioned previously in the study, the distribution of participants who had chosen their vegetarian lifestyle for non-moral reasons was nearly equal to the number of participants who chose the lifestyle for moral reasons. This appeared as a sharp contrast to what we had generally thought of the vegetarian population. Originally we expected the majority of participants to have chosen a vegetarian diet on moral grounds like refraining from supporting cruel animal practices in the meat industry or believing that they made an impact on the environment from engaging in a sustainable diet. If we were to assume that the even distribution between the reasons was not a result of coincidence, we might consider the possibility that the vegetarian diets are becoming a more popular trend for individuals who are concerned about the contents and source of their food; or perhaps, people are becoming more aware and interested in a healthier style of living. However, with no significant results and a study that did not measure enough information to

determine this possibility, we cannot say with any certainty what sort of marketing implications could result from this knowledge.

## **SUGGESTIONS FOR FUTURE RESEARCH**

This study does provide some interesting knowledge of vegetarian consumers, regardless of the lack of significant results. The purpose of the study was to try and identify consumers who would support firms that were considering becoming sustainable, or “green,” through psychographic segmentation. Research for the purpose of identifying green consumers and examining vegetarians as consumers should be continued as the demand for firms to be ecologically conscious and engage in sustainable business practices grows.

In order to achieve better results it would be suggested that future studies make sure that they rid their data of random error and unequal participant distributions. A larger sample size would eliminate the random error that occurs in statistical analysis, and may have occurred in this study which totaled 109 participants. Equal gender distributions, as well as equal distribution between the vegetarian diets considered in this study should be obtained in future research to avoid any biases in the data results that may occur from over- or underrepresentation. Additionally, a sample population that was more representative of vegetarian individuals across the nation would allow researchers to comment on a much broader scale if their study were to find significant results, as opposed to this study which consisted of mainly Florida residents. The inclusion of other altered diets could also be included to encompass individuals who were not able to identify as any of the three diets examined, pescetarian, lacto-ovo vegetarian, or vegan. These additional diets could consist of raw vegan or raw food diets, macrobiotic diets, plant-based diets, gluten-free diets, paleo (Paleolithic) diets, and others. This would allow researchers to include and examine many other vegetarian-style diets, as well as create more specific categories for participants to self-identify as. Finally, a last recommendation for future studies

would be to include a control group of individuals that ate normal, or non-vegetarian, diets to contrast normal consumers with vegetarian consumers as a whole. Considering that pescetarians, lacto-ovo vegetarians, and vegans may seem relatively different between each of their diet's restrictions, compared to an individual with a normal diet, they are all quite similar. This could have been the reason this study did not find any significant results. If future research were to include a control group of consumers that self-identified as having a normal diet, and reflected on the green participation between the normal and non-normal consumers, the possibility of finding significance would be much greater.

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