

ADVANCED AUTOMOTIVE CONCEPTS:  
A MARKETING RESEARCH STUDY  
TO DETERMINE CAR MODEL PREFERENCES  
AND PROFILE MARKET SEGMENTS

Prepared for

Mr. Nick Thomas

Prepared by

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CMG Research, Inc.

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April 16<sup>th</sup>, 2012

Dr. Tuten  
Greenville, NC 27858

Dear Dr. Tuten

I am sharing with you a report I have prepared that utilizes the information that I have learned over the course of this semester. This information covers a vast range of topics, which include secondary research, research designs, statistical analyses, survey samples, and much, much more. Regardless of the topic, all of the information relates the case study discussed in the textbook concerning ZEN Motors.

The case study provided a different scenario for each chapter. My explanation and responses to each individual situation serve as a reflection of my understanding of the material covered throughout all of the chapters. My report offers several considerations that Nick Thomas, CEO of Advanced Automobile Concepts, should account for before making any final decisions for ZEN Motors.

By sharing my opinions with you, I hope to broaden your outlook towards the possibilities that ZEN Motors could engage in. While conducting research for the cases, I myself, gained lots of valuable knowledge that will be considered before purchasing my next vehicle. This information could be particularly useful to you, or anyone you know, that may be interested in purchasing a new vehicle within the next few years.

As you read through my report, please feel free to ask me any questions. I can be reached by phone at (980) 226-6722 or by email: [danenhowera10@students.ecu.edu](mailto:danenhowera10@students.ecu.edu).

Sincerely,

Alicia Danenhower

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**EXECUTIVE SUMMARY**

I have arranged this report for Nick Thomas, CEO of Advanced Automobile Concepts (AAC) in order to help them decide whether ZEN Motors would benefit more from reengineering their existing models or creating new models. ZEN Motors is a well-renowned automobile manufacturer that has been losing market share because of foreign competition, rising gasoline prices, and the introduction of alternative fuel vehicles.

This report analyzes consumer opinions regarding global warming, high gasoline prices, and alternative fuel vehicles and how they relate to the lost market share that ZEN Motors is currently experiencing. The results of those concerns were then crossed with specific demographics in order to uncover which vehicles, if any, would best suit Advanced Automobile Concepts to regain their top-tier position in American automobile manufacturing.

An in-depth survey was administered to 1,000 individuals across the country in hopes of gaining the information necessary for them to figure out their next steps. Research methodologists took extensive measures to examine the results using SPSS software. They decided that ZEN Motors could benefit substantially through the introduction of a new hybrid model. More specifically, they researched the Super Cycle 1-seat hybrid, the Runabout Sport 2-seat hybrid, the Runabout with Luggage 2-seat hybrid, the Economy 4-seat hybrid, and the Standard 4-seat hybrid.

Certain models held a competitive advantage over others, but in general, all five models showed potential for success in the aggressive automobile market. You will find tables towards the end of the report that forecasts statistically significant variables and how they relate to the potential success of each individual hybrid model.

**Unit 1: The Usefulness of Marketing Research for AAC***AAC Summary:*

Nick Thomas was appointed CEO of Advanced Automobile Concepts (AAC), which is a new division of ZEN Motors. ZEN is a large automobile manufacturer that has been steadily losing market share. Nick is now responsible for reviving ZEN Motors by reengineering their current models or by creating new models that will satisfy the needs and wants of consumers. Nick has several issues that he must resolve before making a final decision as to what he feels would be best for ZEN Motors.

These factors include switching their focus from their profitable, large, luxury vehicle to a small, more fuel-efficient vehicle because of the current rise in fuel prices. He must also decide whether or not the rise in fuel prices will last. To further add complications to Nick's decision, he must also weigh in the future of global warming as well as the possibilities of alternative fuels. Nick will have access to ZEN's Internal Reports System as well as the ZEN's Intelligence System, which should help with the extensive research he must conduct before making a final decision.

*Marketing Research Studies:*

As Nick begins formulating objectives and establishing marketing mix decisions, I think Nick will find the following list of marketing research studies useful:

- A. Identifying Market Opportunities and Problems**
  - a. Market-demand determination
  - b. Marketing audits SWOT analysis
  - c. Environmental analysis studies
  - d. Competitive analysis
- B. Generating, Refining, and Evaluating Potential Marketing Actions**
  - a. Marketing-mix evaluation testing
  - b. Concept tests of proposed new products
  - c. Reformulating existing product testing
  - d. New product prototype testing
  - e. Advertising pretesting
  - f. In-store promotion effectiveness study
- C. Monitor Marketing Performance**
  - a. Tracking studies
  - b. Customer-satisfaction studies
- D. Improving Marketing as a Process**
  - a. Applied research

*Research Design:*

Nick should conduct descriptive research if he wanted to gather information about consumers' attitudes toward future oil price levels and global warming. More specifically, Nick should use surveys in order to gather adequate descriptive research. Descriptive research would allow Nick to identify the specifics of who, what, when, where, and how in order to better understand consumer intentions in the future. This type of information would help Nick to describe and measure the sample's levels of intent, the chances of them purchasing a smaller fuel-efficient vehicle, and their attitudes toward oil prices as well as their attitudes towards global warming. One of the major benefits from

descriptive research is the ability to apply the sample's information to a larger population if the research is done properly.

*Information Type:*

Nick would benefit from gathering secondary information first, followed by primary information. Nick currently has access to ZEN's Internal Reports System as well as their intelligence system. This information is critical for Nick to analyze first in order to get a better understanding as to where the company currently stands and which direction is best for him. Nick will be able to establish clearer objectives by utilizing ZEN's secondary information first. Syndicated data is another form of secondary information that I think would be particularly beneficial to Nick. The fee for this data would be small in comparison to the high quality information that Nick would have access to. Nick could then gather primary information in order to support the information or decisions that he made while researching the secondary information.

*Questionnaire Development:*

In a survey that Nick could administer to his respondents, it is important that he covers all the basic questions such as gender, age, average household yearly income, current vehicle information, and opinions on global warming and fuel-efficient vehicles.

Specific examples of these questions could be as follows:

Gender: \_\_\_\_\_ M \_\_\_\_\_ F

Age: \_\_\_\_\_



## Average Household Yearly Income

- A. less than 20,000      B. 20,000-39,999      C. 40,000-59,999  
 D. 60,000-79,999      E. 80,000+      F. Rather not say

Please select the make of vehicle you currently have:

- A. Nissan      B. Toyota      C. Honda  
 D. Chevrolet      E. Lexus      F. Chrysler  
 G. Dodge      H. Mercedes-Benz      I. Ford  
 J. Acura      K. Hyundai      L. Kia  
 M. Mazda      N. Cadillac      O. Other: \_\_\_\_\_

Please circle a number that corresponds to your level of agreement, 1 being that you strongly agree and 5 being that you strongly disagree.

Gas prices are too low.	1	2	3	4	5
Americans use too much gas.	1	2	3	4	5
I believe in global warming.	1	2	3	4	5
I believe global warming should be a major concern for car buyers.	1	2	3	4	5
I would purchase a smaller, more fuel-efficient vehicle because of the high gas prices.	1	2	3	4	5
I would purchase a smaller, more fuel-efficient vehicle for environmental reasons, such as global warming.	1	2	3	4	5

*Sample Plan:*

In order for Nick to gather the primary information that he needs, I think he would benefit most from sampling current owners of small, fuel-efficient vehicles. By surveying these individuals, Nick would be able to understand what it is that consumers like or dislike about their fuel-efficient vehicles. He may discover a specific trend after analyzing the final results. An example of such a trend could be that most owners prefer a small (4 seat) vehicle with high mpg ratings to save money on fuel as the gasoline prices continue to rise. I firmly believe that Nick would be missing out on valuable information if he decided to skip over previous or present small automobile owners.

Nick would also benefit from sampling individuals with large vehicles. By sampling individuals that already have large vehicles, he will be able to identify the level of satisfaction they have with their current SUV. He can also ask specific questions to discover whether or not the person would even be interested in a smaller, more fuel-efficient vehicle. This would also allow him the chance to discover whether large vehicle owners are worried about global warming or fuel costs. For a more specific sample, I suggest that Nick includes owners of large vehicles from a variety of manufacturers. Individuals may be biased towards a specific manufacturer and this might allow researchers to pinpoint the potential success of a smaller vehicle at ZEN Motors.

Outside of the consumers directly interested in purchasing vehicles, Nick would likely uncover critical information by surveying manufacturers that specialize in small, fuel-efficient vehicles. Success of manufacturers is dependent on demand. Therefore, surveying manufacturers would allow Nick to ask specific questions in order to figure out which cars are selling the best and which cars would not be worth his time to even consider developing. Survey results from manufacturers could provide insight as to why they chose to produce certain vehicles in the first place, whether it be for global warming purposes, the increasing prices of gasoline, or even appearance purposes.

## **Unit 2: Establishing Secondary Information Relevant for AAC's Marketing Situation**

### *Secondary Information Types:*

There are plenty of secondary information sources already available to Nick. A few of these sources include ZEN's Internal Reports System as well as their intelligence system. Outside of those sources, Nick would benefit from indexes and statistical sources. *ABI/INFORM Global*, *Datapedia*, and *Market Share Reporter* are just a few examples of specific indexes and statistical sources that would be of great use to Nick. Indexes would help to reduce the time that Nick spent searching for information by allowing him to search for information based on specific topics. Statistical sources on the other hand, would deliver important numerical data in the form of charts and tables. Numerical data is just as important as descriptive data in the sense that it will allow Nick to view similar information in a visual format.

*ABI/INFORM Global* provides abstract and full-text articles pertaining to a variety of business topics. A major advantage of *ABI/INFORM* is that it is available online, which means that it is easily accessible and cheap. *Market Share Reporter* can also be accessed online, but it requires a membership. Even though it requires a membership, I believe the benefits of the reports would outweigh the costs. *Datapedia* is available as a book. This book provides graphs and tables of historic and forecasted statistics based on social, political, economical and cultural variables. While I only mentioned three specific types of secondary information sources, there are plenty of other options available for Nick to utilize.

*Literature Review:*

ZEN Motors is a multinational manufacturer representing a wide variety of truck and automobile brands. ZEN recently appointed Nick Thomas as CEO of Advanced Automobile Concepts (AAC), which is a new division within the organization that was created specifically to revive the aging automobile models that they are currently producing. ZEN Motors realized that they were beginning to lose market share because of an increase in foreign competition, an increase in gasoline prices, the realization of global warming, and the introduction of alternative fuel vehicles. Nick is now left with the decision of reengineering their existing models or developing entirely new models in order to restore the image of ZEN Motors.

First and foremost, Nick must take into consideration the idea of global warming. Global warming has become a very serious issue in recent years. The Intergovernmental Panel on Climate Change has proven that CO<sub>2</sub> is a major contributing factor, which is primarily released through emissions from petroleum vehicles (Lin, C.). Consumers have begun to notice the negative effects that global warming has had on our environment. As a result, they are becoming more and more interested in the idea of alternative fuel vehicles.

While it has been proven that global warming is a serious concern that all Americans should be aware of, there are still individuals who believe the concept to be a hoax. There are also consumers who refuse to believe that humans contribute to global warming. Rather, they believe that global warming is simply a natural phenomenon that occurs as a result of Earth's temperature cycles. In other words, it is highly unlikely that individuals with this perception would be interested in any of the new automobiles that

ZEN Motors would introduce in the process of revitalizing their organization. With that being said, Nick must be able to not only identify, but also avoid market segments with this particular attitude towards global warming.

For those Americans that are aware of global warming, they are also aware of the growing interest regarding alternative fuel vehicles. Some of the most popular alternative fuel vehicles include vehicles running off biodiesel or natural gas, electric hybrids, and vehicles powered by hydrogen cells. ZEN Motors has decided that their best alternative fuel option would be a hybrid model that runs off electric power as well as an engine powered by gasoline, diesel, biodiesel, or CNG. Their overall goal is to produce a model, or several models, that have high to very high mpg ratings while still meeting consumer demands regarding appearance, comfort, affordability, and dependability.

Consumers are more price conscientious now than ever before because of the length and significance of the current recession. One of the drawbacks that consumers have against alternative fuel vehicles is the price. In hopes to counteract this obstacle, local and state governments have recently begun offering incentives for owners of alternative fuel vehicles. As of late 2007, twelve states either offer or have offered some type of monetary incentive for hybrid vehicles. A few examples of such incentives include free parking, tax credits, rebates, and full or partial waivers on sales tax (Diamond). Incentives are a great way for dealerships to increase the marketability of these newer, alternative fuel vehicles.

As the interest levels of alternative fuel vehicles continues to increase, so does the availability of their resources. In September of 2011, the American Wind Energy Association (AWEA) announced plans to research the idea of wind and gas as a joint

energy source (Natural). Researchers are now suggesting that gas-fired power plants, which can be used to recharge electric vehicles, could benefit significantly from wind. Proper utilization of the wind would increase the availability of the natural gas that would be used within the plants to power alternative fuel vehicles. Considering that wind is not only a natural resource, but also a free resource, it is definitely worth looking into as an alternative fuel option.

Another alternative fuel option that has been generating discussion amongst consumers is that of biodiesel, which comes from crops such as corn, wheat, or sugarcane. Environmentalists have made a drastic push towards the exploration and promotion of biodiesel for several reasons. To start with, biodiesel is economically friendly. As the price of gasoline approaches \$4 per gallon, with no signs of dropping any time soon, consumers have begun to encourage the innovation of alternative fuel vehicles. Biodiesel is both a great alternative fuel source and an economically viable solution for consumers that are concerned with global warming (Pearce).

Even though biodiesel is a great alternative fuel option, hybrid electric vehicles are currently the most well known option. Advantages of hybrid electric automobiles include a reduction in greenhouse gasses, less money spent on gasoline, and very little maintenance to the vehicle. Greenhouse gasses are defined as the harmful toxins that trap heat in the Earth's atmosphere, which causes global warming (Adams). Electric vehicles can reduce greenhouse gas emissions by as much as ninety percent (Adams). For customers that are extremely concerned with the idea of global warming, hybrid electric vehicles would be a great alternative.

As previously mentioned, electric hybrid vehicles will need very little maintenance compared to the average, traditional car model. If the car were completely electric, the car would never need oil changes, filters, or the regular tune-up (Adams). Electric hybrids, on the other hand, would still need oil changes, but not nearly as often as a regular vehicle because of the increased gas mileage and electrical push provided through charging. For individuals who are primarily concerned with saving money, they would benefit substantially with an electric hybrid vehicle. Hybrids have the potential to be up to five times cheaper than a regular model vehicle when it comes to gasoline (Adams).

Even if ZEN Motors were to begin producing hybrid electric vehicles, they must work to establish superiority amongst their competitors. Regardless of the industry nowadays, foreign competition has proven to be a concern for most manufacturers. Cars are no exception to this generalization. ZEN Motors feels as if they are already experiencing substantial losses due to the growing popularity hybrid automobiles produced in Japan. In 2009, Japan placed as the world's second largest market for hybrid vehicles with sales of 249,619 units. The US was just barely ahead with having sold 265,501 units (Japan).

Despite all of the concerns that could affect Nick, he is well aware that major changes are necessary in order to revive ZEN Motors. Whether he chooses to reengineer existing ZEN models or create new models from scratch, the success of the organization is in his hands. He must find a way to bury the apprehensions regarding increasing gasoline prices, global warming, and increased foreign competition. In hindsight, Nick

must work through a major, in-depth, cost-benefit analysis in order to determine which approach would yield the best results for ZEN Motors.



**Unit 3: AAC's Marketing Problem and Corresponding Research Objectives;  
Evaluation of the Value of Exploratory and Casual Designs**

*Problem Source:*

Opportunity can be accredited as the source of Nick's problem. Nick has several opportunities to consider before making any final decisions. Opportunity problems occur when there is a gap between what did happen and what could have happened. ZEN Motors has been successful thus far due to the sales of their larger SUV's. ZEN has the opportunity though to substantially increase profits as well as market share if they were to introduce a smaller, more fuel-efficient vehicle.

There is always going to be a demand for SUV's regardless of whether or not the spike in gasoline prices is here for the long haul. While the demand might not be as high as usual, people who are not concerned about gas prices will continue to purchase SUV's. I would argue that the chances of gasoline prices rising again is high based on the fact that this is the second time in the last fifty years that it has risen at such a drastic level.

If ZEN could find a niche in the manufacturing of a smaller, more fuel-efficient vehicle, I think they could increase their market share to a whole new level. The opportunity is available to Nick and I think it is an opportunity that he should capitalize on. Worst come to worst, the new model would be unsuccessful and they would have to try again. With ZEN already losing market share, I do not think it would hurt the company to give a new model or two a shot.

*Problems facing AAC*

Problems are described as any situation calling for a manager to make choices among alternatives. Nick currently has several options that he can choose from in order to do what he feels would lead to the most success for ZEN Motors. Nick can either reengineer existing models or he can develop a completely new model in order to compete with the current market. If Nick were to develop a new model, he has the choice of several different basic models. These models include a very small (one seat) vehicle, a small (two seat) vehicle, a large (four seat) vehicle, or a larger (five or six seat) vehicle.

Regardless of which vehicle model Nick chooses, he has decided on the production of a hybrid. Through the Douglass Report, Ms. Douglass predicted a sales cap for a total electric vehicle due to the range limitation before needing to be re-charged. To avoid such a problem, Nick proposed the idea of a hybrid that used both electric power as well as engine power through gasoline, diesel, biodiesel, or CNG. After deciding which fuel option would be best to create maximum engine power, Nick will then have to decide how many models he will want to create, manufacturer, and market for each individual model. The Douglass Report pointed out that there may be a demand for several different models, which means that Nick must discover which models will have the greatest demand.

Another problem that Nick is up against is properly identifying market segments. Even after he identifies these segments, he is going to have to figure out which models will market the best in each of the different segments. Some markets may prefer two or three models while others may prefer a model unique to their specific environment. For example, individuals in New York may prefer one, unique model considering the

everyday traffic that is unavoidable. However, other states with significantly less traffic may prefer several different models to choose from based upon their demographics.

The third and final problem that was identified by the Douglass Report is that of marketing efficiency. The Douglass Report stresses the need to market future vehicles as efficiently as possible because of increased competition accompanied by decreasing profit margins. If gasoline prices continue to remain high along with the threats of global warming, governmental policies will begin to push automobile manufacturers towards energy-saving and fuel-efficient vehicles. If all manufacturers were forced to abide by new governmental rules and regulations through the production of specific, energy-saving vehicles then each individual manufacturer would feel the impact. It would be more and more difficult for manufacturers to differentiate themselves from other manufacturers if they were all required to produce similar vehicles.

One way for manufacturers to gain an advantage over their competitors would be based upon their advertising. While this may not create drastic results of marketing efficiency, it has the potential to make a difference. Advertisers must market specifically to those that are interested in these new models rather than wasting efforts by advertising to uninterested markets. Through the use of demographic information, advertisers should be able to focus a large percentage of their media efforts to only those consumers that are interested.

*Research Objectives:*

As previously stated in question two, Nick has three major problems that he must solve in order to move forward with the production of new models for ZEN Motors.

These problems include the demand for different basic models, the identification of market segments, and marketing efficiency for the selected models according to the appropriate segments. Now that these problems have been identified, Nick is ready to go ahead with formulating research objectives for each of the problems:

*Research Objective 1:* We must gather information from a sample representative of the U.S. population among those who are “very likely” to buy an automobile within the next six months, which measures preferences of hybrid models in four different sizes (ranking them in order from 1-4, 1 being the most desirable model and 4 being the least desirable model) that will operate off of either (a) gasoline, (b) diesel, (c) biodiesel, or (d) CNG. This data could then be used to predict which model, based off of demographic variables, would likely be the most desirable for each combination of the model’s size and fuel structures.

*Research Objective 2:* Using a representative sample of the entire U.S. population who are “very likely” to purchase an automobile within the next six months, measure how many models that consumers will demand (measured on a 1-5 scale ranging from “very likely to buy” to “not likely to buy”) based upon the market segments that they reside in. This data will help research methodologists forecast which models and how many models will be successful in each market segment.

*Research Objective 3:* Gather information from a sample representative of the entire U.S. population among those who are “very likely” to purchase an

automobile within the next six months, which measures marketing efficiency (calculated on a 1-5 scale ranging from “very likely to buy” to “not likely to buy”) based upon standard demographic data, which includes (a) gender, (b) marital status, (c) age, (d) level of education, (e) income, (f) number of vehicles owned, and (g) type of vehicle owned. Such data would help researchers identify the correct market segments that are interested in specific models and which segments would benefit from the addition of a dealership in their location.

*Research Design:*

One of Nick’s major concerns is that he is lacking information from consumers. In order to gather information from consumers, Nick would benefit from using exploratory research. His first set of issues consists of three basic questions that would enhance his understanding of consumer opinions versus industry reports and employee opinions. Answering these questions would essentially help Nick get started, as they would help him define the problem, which would then allow him to establish solid research objectives. Exploratory research would help Nick gather the background information that is necessary in order to establish the appropriate research objectives.

In order to collect information through exploratory research, I think that focus groups would be the most effective way. Focus groups are a relatively inexpensive, fast, and informational way to gather such information. A moderator in an unstructured environment guides a small group of people through a discussion in order to learn the type of vocabulary used to by the average person. The unstructured environment also allows for flexibility in the responses of those involved. Instead of receiving just yes or

no answers, participants have the opportunity to explain their attitudes concerning the issues that ZEN Motors is facing. Focus groups would also allow Nick to gain a better understanding as to just how important global warming and increasing gasoline prices are to consumers.

The second set of issues concerns topics that have already established research objectives. Since these concepts have already been recognized, the next step is for researchers to actually describe and measure these objectives through questions such as who, what, where, when, and how. Research methodologists will likely need a larger sample that covers the vast majority of demographics in order to accurately measure consumer responses. The best way for researchers to target these individuals would be through descriptive research. Advanced Automobile Concepts would benefit tremendously if they were to use continuous panels in a longitudinal study.

A longitudinal study repeatedly measures the same sample units of a population over a period of time. While longitudinal studies are more expensive, they will provide Nick with more accurate information. Nick would be able to track consumer trends in regards to the rise and fall in gasoline prices over the years if he was willing to put forth the extra time and money. He may even discover that there is no correlation between gasoline prices and consumers purchasing smaller, more fuel-efficient vehicles. The only way for Nick to truly discover connections between such variables is by having access to the same members of a sample to take multiple measurements over time.

Members who would be willing to take part in such a survey are considered continuous panel members. Continuous panels would allow Nick to engage in market tracking studies, which would help him monitor changes in different segments across the

country. Different models will most likely sell better based upon the market segments in which they are sold and the most effective way to track such information is through continuous panels. One of the major benefits for Nick utilizing continuous panels is that the questions and variables would remain the same from measurement to measurement.

Nick's last concern questions exactly how much of an increase in mpg will ZEN Motors need in order for them to keep up with their competition. In order to solve this problem, I think Nick needs to engage in experiments through causal research. I consider this to be one of the most important factors facing Advanced Automobile Concepts. Therefore, I believe Nick must be willing to spend more time and money to ensure the validity of this information.

Nick could run an experiment based off of the statement, "If we increased all of our models mpg by 5 mpg, then consumers will be satisfied with the increase to the point where they would continue purchasing our vehicles rather than our competitors." To guarantee internal and external validity of this particular experiment, I would suggest that ZEN Motors run a "before-after with control group" experiment.

In simpler terms, ZEN would divide participants into two groups; the experimental group and the control group. The experimental group would be given a new model with a 5 mpg increase, while the control group would get the exact same car, but with the current mpg ratings. To control for external validity, participants would have to travel in similar traffic conditions (Ex. Individuals may only drive on the highway). ZEN should test the individual's perceptions on mpg before the experiment as well as after the experiment to accurately measure the results.

The above example is a very simple, basic experiment in the sense that Nick would need to put significantly more thought into the experiment before choosing to execute it. Even though experimentation is one of the most expensive and time consuming forms of research, it would be hard to place a value on the information that he would receive from the results. I believe that experiments would be the only real way for Nick to know how much of an increase in mpg ratings would suffice for consumers to stay loyal or switch over to ZEN Motors. The results may even indicate that an increase in mpg ratings would not affect consumer's thoughts of the models offered at ZEN Motors.

*Planning Document:*

### **Advanced Automobile Concepts Focus Group Planning Document**

**Purpose:** Nick Thomas, CEO of Advanced Automobile Concepts, has come to the realization that he will need to develop much smaller vehicles than he is accustomed to manufacturing in order to compete in today's marketplace. His current plans include the introduction of a very small, "scooter-like" car along with several other models that are larger, yet still smaller than a traditional model for ZEN Motors. Ashley Roberts, from the advertising department, has now been placed in charge of creating an advertising campaign that is appropriate for the newer models. Ashley must discover whether or not an individual's values will have any effect on their vehicle selection, and if so, what alterations to ZEN's current advertising style would accurately portray these values.

**Participants:** We feel strongly that two focus groups, each consisting of twelve people, would be representative of consumer opinions that are of interest to us. We set our desired level of participants at twelve with the anticipation of individuals backing out or not showing up. In actuality, anywhere from eight to ten people would suffice. Two groups would be used in hopes of connecting trends or shared opinions, which could then be applied to a larger population.

More specifically, our participants will include roughly the same amount of males and females, all of which are in their late twenties or early thirties. These individuals must also have an average yearly income of \$40,000 or more. The more money an individual makes, the better the chances are of them being interested in a new vehicle from ZEN Motors. By grouping individuals with similar demographics, we hope to



provide a more comfortable atmosphere so participants are more willing to contribute to the discussion.

**Recruitment Plan:**

*Identification:* Hi! My name is Alicia Danenhower and I am research methodologist here at ZEN Motors. If I could ask you a couple questions, I would be more than appreciative of your time.

*Purpose:* ZEN Motors is looking to introduce several new models, all of which sway from our traditional values, in hopes of regaining market share in the competitive environment that we currently reside in. In order to introduce and essentially, launch our new models, we would like to use consumer feedback before making any advances in our advertising campaign. We need your feedback in order to analyze whether consumer values influence the types of models they are drawn to. If there is a correlation between consumer values and vehicle preferences, then we would also like to discover the best advertising methods that should be used to grab the consumer's attention.

*Method:* To obtain such information, we plan to utilize two separate focus groups, each group consisting of a maximum of twelve people and a minimum of eight people. Each focus group session will last approximately two hours. In exchange for the time and input of willing participants, we are offering each of them \$100 cash along with a free lunch of their choice, catered by Panera Bread.

Each focus group will meet in a large office room at the corporate headquarters of Advanced Automobile Concepts, which is located in Philadelphia, Pennsylvania. The first focus group will be held on Saturday, August 4<sup>th</sup>, 2012 at 9:30. The second focus group will be held on Saturday, August 11<sup>th</sup>, 2012 at 9:30 AM.

We will recruit individuals at local dealerships that currently offer vehicles manufactured through ZEN Motors. Questions to recruit participants will be as follows:

Hi, my name is Alicia Danenhower. On behalf of ZEN Motors, could I have a few moments of your time?

**Screening Questions:**

1. Where is your current place of employment, if employed? (The answer to this question will likely indicate whether or not the individual is making \$40,000 or more without directly asking for their income.)
2. Are you familiar with current models offered by ZEN Motors?
3. Are you likely to purchase a new vehicle in the next few years?
4. Would you consider a smaller, more fuel-efficient vehicle as your next car?

You seem like you would be a great fit as a participant in our upcoming focus group session. We would be more than appreciative of your time if you would be willing to join a few others and myself on August 4<sup>th</sup>, 2012 at 9:30 AM. The session would last approximately two hours. In this session, you would briefly discuss your values with eleven other individuals who share similar interests to you. You will also discuss how your values may relate to your car buying decision and in what ways your values may be affected by various forms of advertising. Afterwards, we will present you with \$100 compensation in cash as well as a free lunch provided by Panera Bread. Is this something you would be interested in?

If the applicants agree to participate, I will ask them for a home address, email address, and telephone number in order to confirm their participation as the focus group session draws nearer. At this time, I would give them my business card as a resource if they were to change their mind or if they were to have any further questions. Once all information is exchanged, I would thank them for their time and see them off.

*Note:* Once I find twenty-four individuals who are willing to participate in the focus group sessions, I will look for six more individuals who are interested to serve as back up incase participants were to flake out.

**Logistics:** 5855 Peachtree Blvd  
Atlanta, GA 30341

Focus Group 1: August 4<sup>th</sup>, 2012  
9:30-11:30 AM - followed by lunch

Focus Group 2: August 11<sup>th</sup>, 2012  
9:30-11:30 AM - followed by lunch

Incentives: \$100 cash compensation, free lunch provided afterwards,  
networking with similar individuals

Pre-meeting activity: Beginning at 8:45 AM, the office room will open for individuals to enjoy a cup of coffee, juice, or water. Light refreshments will also be provided. This will give individuals the opportunity to mix and mingle beforehand if they choose to do so. The moderator will be present in hopes of helping to relax participants as well as to answer any questions prior to the focus group session.

**Confirmation Letter:**

Alicia Danenhower  
5855 Peachtree Blvd  
Atlanta, GA 30341  
(877) 467-3491

July 23<sup>rd</sup>, 2012

[Participant Name]  
[Participant Address]  
[Participant Address]

Dear [Participant Name]

I am writing in order to follow up with you on your agreement to participate in a focus group for ZEN Motors. I have written down that you agreed to participate in the first focus group, which is scheduled for 9:30 AM on Saturday, August 4<sup>th</sup>, 2012. This session will be held at our corporate headquarters office, which is located at 5855 Peachtree Blvd. Please feel free to call me for directions.

Light refreshments will be provided starting at 8:45 AM. The focus group will start promptly at 9:30 AM and last approximately two hours. We will take a break towards the middle of the session to fill out an order for our lunch from Panera Bread, which will have arrived by the end of the session. You will be provided with your \$100 cash compensation during the lunch.

Please contact me at (877) 467-3491 in order to verify a response as to whether or not you are still planning on attending. The information that we receive from your focus group will be filed as confidential in Advanced Automobile Concepts records. We truly appreciate your time and effort in helping us get ZEN Motors in the right direction.

Thank you,

Alicia Danenhower

Advanced Automobile Concepts  
(877) 467-3491  
danenhowera10@aac.com

**Moderator's Guide:**

*Note:* Participants have already been made aware that their focus group session will be recorded with both audio and video.

**Welcome:**

Time: 9:30 AM	<ul style="list-style-type: none"> <li>• Introduce myself</li> <li>• Specify rules and guidelines for the session</li> <li>• Make sure participants are aware of bathroom locations</li> <li>• Allow participants to introduce themselves</li> </ul>
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**Introduction:**

Time: 9:40 AM	<ul style="list-style-type: none"> <li>• Brief discussion on ZEN Motors traditional models</li> <li>• Introduce new market ZEN Motors is trying to compete in</li> <li>• Discuss research goals of session</li> <li>• Ask if participants have any questions or concerns</li> </ul>
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**Questions:**

Time: 9:50 AM	<ul style="list-style-type: none"> <li>• Would you consider purchasing a smaller, more fuel-efficient vehicle through ZEN Motors? Why or why not?             <ul style="list-style-type: none"> <li>○ Probes-traditional vs. non-traditional, increased mpg ratings, preferred size of model, appearance</li> </ul> </li> <li>• Ask if participants have any questions.</li> </ul>
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Time: 10:10 AM	<ul style="list-style-type: none"> <li>• What are your current values at this point in your life? Would you say that your values might have an impact on the next vehicle you choose to purchase?             <ul style="list-style-type: none"> <li>○ Probes-discuss current values, single vs. family oriented, thrill vs. job oriented, etc.</li> </ul> </li> <li>• Ask if participants have any questions.</li> </ul>
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Time: 10:30 AM	<ul style="list-style-type: none"> <li>• Does advertising usually influence your car buying decisions? Would advertising directly related to your values influence the vehicles you were interested in?             <ul style="list-style-type: none"> <li>○ Probes-types of advertising, which ads stand out and why, preferred method of advertising</li> </ul> </li> <li>• Ask if participants have any questions.</li> </ul>
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*Note:* Participants will receive a ten-minute break here in order to place their order with Panera Bread. This will also serve as a time for participants to use the restroom and re-group.

<p>Time: 10:40 AM</p>	<ul style="list-style-type: none"> <li>• How would you compare ZEN Motors to other car manufacturers in the area?             <ul style="list-style-type: none"> <li>○ Probes-factor in previous questions (new vehicles, advertising methods, values, likelihood to buy)</li> </ul> </li> <li>• Ask if participants have any questions.</li> </ul>
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<p>Time: 11:00 AM</p>	<ul style="list-style-type: none"> <li>• Open Discussion             <ul style="list-style-type: none"> <li>○ Probes-Allow participants to engage in conversation with others without interruptions from the moderator (only speak if participants get off topic)</li> </ul> </li> </ul>
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**Conclusion:**

<p>Time: 11:20 AM</p>	<ul style="list-style-type: none"> <li>• Ask if participants have any questions.</li> <li>• Ask participants for feedback on the focus group.</li> <li>• Thank them for their time and dismiss them to lunch, where they will be receive their compensation.</li> </ul>
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#### **Unit 4: Descriptive Research, Survey Design and Measurement**

##### *Data Collection Mode:*

There are many factors that Cory must consider before taking the initiative to administer mail surveys for Advanced Automobile Concepts. Mail surveys are rarely used nowadays when it comes to data collection. One major advantage to mail surveys is that they are relatively inexpensive. They are also easy to administer considering that surveyors do not need to recruit participants and their information is readily available through mailing lists. It would be very easy for Cory and Nick to access specific target markets through the use of business mailing lists. While this may seem like a great idea at first, Cory must also keep in mind the disadvantages that come along with mail surveys.

Two major problems currently contribute to the lack of popularity of mail surveys. The first problem is the number of individuals that choose not to respond to such surveys. Surveys can easily be perceived as junk mail and tossed in the trash before the individual even think to fill them out. The other major issue pertaining to mail surveys is termed self-selection bias. In other words, people that answer and return the survey will most likely answer differently than those people who do not complete and return the survey. This could result in a sample response that was not representative of the population, which would be wasted effort on behalf of Cory and Nick.

Researchers have no way of knowing whether survey participants are heavily involved with the product compared to those that do not fill out the survey. For example, owners of fuel-efficient cars might account for most of the responses that they receive

back from the mail survey. This could easily lead to biased results in favor of select alternative fuel models. The chances of mail surveys avoiding bias are slim to none, but with them being so cheap and easy to administer, they might be an appropriate method to get ZEN Motors started.

Telephone surveys are similar to mail surveys in that they too have their advantages and disadvantages. Advantages include cost, quality, control, speed and flexibility with responses. Even when it comes to long distance phone calls, they still prove to be cheaper than any face-to-face interview. Aside from being cost effective, telephone surveys have the potential to produce the best sample out of any of the data collection methods. Random dialing and accurate callback procedures could lead to unbeatable survey results.

Another critical advantage of phone surveys is control. If phone interviewers feel that the respondent's information is biased or irrelevant, they have the option to disregard their responses right then and there. The interviewers could simply thank them for their time and move on to the next phone call, which leads into the speed advantage. If one person does not answer, surveyors move down to the next number on the list until they have reached the desired number of respondents. With this method, surveyors do not have to wait on individuals to respond to a mail survey, that is if they even choose to respond.

The final advantage of telephone surveys is flexible responses by the interviewees. With mail surveys, individuals sometimes only have the options of yes or no or a through d. Telephone surveys would allow people to not only respond with the yes or no answer, but also with the chance to explain their answers if they choose to do

so. This way would allow surveyors to take notes on general questions that may otherwise be overlooked or not considered through other data collection methods. No method can be too perfect though as telephone surveys come with their disadvantages as well.

Disadvantages of phone surveys include limited interaction with products, the lack of information that can be obtained and the loss of information through observation, such as body language and facial expressions. If Nick were to administer a phone survey that asked specific questions about the car models, respondents might struggle to produce responses without having the exact car in front of them to look at. For instance, the surveyor might ask whether an individual prefers a small, two-seat vehicle with lots of trunk space instead of a larger, three-seat vehicle with limited trunk space. Some people may have trouble comparing the size of the two vehicles without actually seeing them to make the comparisons.

The quantity and types of information that can be accessed through phone surveys is also limited. It takes longer for individuals to ask questions and write down or type their responses than it would for people to fill out their own surveys. Another idea for Cory to consider is the amount of information that he wishes to gain from these surveys. If he knows that he will be asking a lot of questions then a phone survey would not be appropriate considering the potential length of the conversation. Most people will not have the time or not wish to spend their time on the phone for an hour answering questions without any direct benefit to them.

A third disadvantage that I think could really hurt the results of a survey is the lack of information obtained through observation. It would be extremely difficult, if not



impossible, to read the body language or facial expressions of individuals through the phone. In face-to-face interviews, the interviewers can usually tell whether or not a person genuinely means what they say. Body language as well as facial expressions can hint at underlying problems or concerns that people have, but may not want to speak of. Being able to observe such actions would help to eliminate the likelihood of false responses.

The last, and most noteworthy problem with telephone surveys is the increasing lack of cooperation with the public. Nowadays, the public has access to caller i.d. and do not call lists that allow potential respondents to avoid calls from telemarketers. The public mistakes telemarketers with interviewers, which significantly reduces the response rate for telephone surveys. Despite the increasing amount of screened phone calls, telephone surveys have not yet been completely eliminated. I believe that phone surveys could be an effective data collection method for Nick and ZEN Motors.

There are several data collection methods that Cory should eliminate right from the get-go. These methods include drop-off surveys, group-administered surveys, and mall-intercept surveys. Drop-off surveys are questionnaires that are left with respondents to fill out. They are later pick up by the administrator or mailed in by the respondents. Cory has been hired to uncover consumer attitudes towards global warming, gasoline prices, and several other topics. Because the surveys are left with the respondents, they must be self-explanatory, which already limits the types of questions that Cory would be able to include on the survey. Drop-off surveys would likely provide Cory with vague responses.

Another disadvantage of drop-off surveys is low response rate supplemented by a small market segment reach. It would be easy for the respondents to just toss the surveys in the trash or never mail them back in. Drop-off surveys seem to work best in a local target market. Cory needs to unravel consumer's attitudes all over the country rather than just one town or state. It would not make any sense for Cory to drive or fly all over the country to simply drop off a survey that might not even get returned to him.

Group-administered surveys would likely be more successful than drop-off surveys, but they too come with their disadvantages. First and foremost, group surveys may limit the comfort of the individuals involved. Respondents may not feel comfortable enough to ask for clarification of survey questions. The other major concern Cory should have with group-administered surveys is that they will also provide him with limited information. It is difficult to really grasp a consumer's actual thoughts or feelings based off survey responses. Overall, group-administered surveys would limit the responses on consumer's beliefs and worries. These are serious considerations that generally need more in-depth responses or flexibility.

The last of these data collection methods that I would avoid is that of mall-intercept surveys. I genuinely think that these would be the least effective surveys for Cory. While they may be convenient, the response selection is completely biased. If Cory were to survey only people from the malls, he would be missing a large segment of the population. There are some people that never go to the mall and then there are people like me, who purposely avoid people at the mall that try to ask me questions. People generally go to the mall to shop, not to get asked questions.

Another downfall to mall-intercept surveys is the lack of natural environment. I would not think that many people would feel comfortable standing in the middle of the mall, with people walking by them in both directions, to answer a survey pertaining to global warming, alternative-fuels, or hybrid automobiles. Even if respondents agreed to take the survey in a private room, that too lacks the natural, relaxed setting that respondents deserve. Lacking a comfortable setting might lead interviewees to rush through the survey, leave questions blank, or circle the first response that comes to mind. It is clearly evident that drop-off surveys, group-administered surveys, and mall-intercept surveys are all poor choices for Cory when it comes to data collection methods.

In-home interviews as well as online surveys are both credible options for Cory to choose from when it comes to creating a survey for Advanced Automobile Concepts. In-home interviews take place in the comfort of the interviewee's own home. Online surveys, on the other hand, are conducted in the comfort of one's own home, but through the computer. One is face-to-face while the other is done virtually. In-home interviews and online surveys both have pros and cons just like all the other data collection methods discussed thus far.

In-home interviews are relatively expensive due to the recruiting of participants as well as the drive to and from the homes of the respondents. The benefits of in-home interviews are far greater than most of the other data collection methods. Benefits of in-home interviews include flexible responses, observation during the interview and the comfort of a personal setting that one feels in their own home. A face-to-face interview allows flexibility for both the interviewer as well as the respondent. The surveyor can also observe the responses of the interviewee to gain a better understanding of their

responses through body language and facial expressions. Lastly, an in-home interview would provide a more relaxed setting for those being interviewed. Respondents might be willing to provide more information for Nick if they are in a comfortable environment to begin with.

Online surveys have become the fastest-growing method of data collection. They would benefit Cory and Nick because they are extremely cheap, easy to create and they tend to have a high response rate in a short amount of time. Administrators have the ability to send out a mass amount of surveys all at the same time. The only drawbacks to online surveys that Advanced Automobile Concepts should be concerned about is the fact that some people do not have access to the internet as well as the idea that potential respondents might consider the survey to be spam. Again though, due to the cheap administration costs, online surveys would be of great use for Nick and Cory.

*Measurement:*

### **Advanced Automobile Concepts Questionnaire**

For the purposes of this survey, please answer the following questions referring to the **one** vehicle that you drive most often. If you have never owned a vehicle, please answer the following questions as if you were going to be purchasing a car soon. We appreciate you taking the time to complete our survey! Thank you!

1. Gender: \_\_\_\_\_ M    \_\_\_\_\_ F (Nominal)
2. Age: \_\_\_\_\_ (Ratio)

3. Household Yearly Income: **(Ratio)**

- |                  |                  |                  |
|------------------|------------------|------------------|
| A. <20,000       | B. 20,000-29,999 | C. 30,000-39,999 |
| D. 40,000-49,999 | E. 50,000-59,999 | F. 60,000-69,999 |
| G. 70,000-79,999 | H. 80,000-89,999 | I. 90,000 +      |

4. What car model do you currently drive? (Ex. Ford) \_\_\_\_\_ **(Exploratory)**

5. What car make do you currently drive? (Ex. Escape) \_\_\_\_\_ **(Exploratory)**

6. What year is your vehicle? \_\_\_\_\_ **(Exploratory)**

7. What make and model was your previous vehicle? Please indicate N/A if you do not have a previous vehicle. \_\_\_\_\_ **(Exploratory)**

8. Do you consider yourself to be brand loyal to specific makes or models? **(Nominal)**

Yes \_\_\_\_\_ No \_\_\_\_\_

9. Please indicate your level of agreement with the following statements by circling the appropriate number. **(Interval)**

Statement	Strongly Agree → Strongly Disagree					N/A
a. I believe in global warming.	1	2	3	4	5	N/A
b. I believe gasoline has impacted global warming.	1	2	3	4	5	N/A
c. I believe the rise in gas prices is temporary.	1	2	3	4	5	N/A
d. Gas prices have impacted my social life.	1	2	3	4	5	N/A
e. I will consider a more fuel-efficient vehicle the next time I purchase a vehicle.	1	2	3	4	5	N/A
f. I am brand loyal.	1	2	3	4	5	N/A
g. I would consider switching brands in order to prevent global warming.	1	2	3	4	5	N/A
h. I am satisfied with my current vehicle.	1	2	3	4	5	N/A

10. Has the recent rise in gasoline prices affected your next vehicle choice? (Nominal)

Yes \_\_\_\_\_ No \_\_\_\_\_

11. What is the minimum city gas mileage that you would accept before purchasing a vehicle? (Ratio)

- A. 20 mpg or less
- B. 21-25 mpg
- C. 26-30 mpg
- D. 31-35 mpg
- E. 36 + mpg
- F. Does not matter/ Not sure

12. If any, circle the alternative fuel vehicles that you would consider purchasing as your next vehicle? (Nominal)

Hybrid                  Synthetic Fuels                  Electric

13. If you were to purchase an alternative fuel vehicle, which size would you prefer? (Nominal)

- A. Mini
- B. 2-Door
- C. 4-Door
- D. SUV
- E. Pickup

14. Which of the following describes your level of concerns most accurately? (Nominal)

- A. I am more concerned about global warming than I am about the increasing price of gasoline.
- B. I am more concerned about the increasing price of gasoline than I am about global warming.
- C. I am equally concerned when it comes to global warming and the increasing prices of gasoline.
- D. I am not concerned with either the rise in gasoline prices or the idea of global warming.

15. Approximately how many times per month do you fill up your tank? (Ratio)

- A. 1-2 times per month
- B. 3-4 times per month
- C. 5 + times per month

16. What is the size of your current gas tank? (Ratio)

- A. 10-14 gallons
- B. 15-19 gallons
- C. 20-24 gallons
- D. 25-29 gallons
- E. 30 + gallons

17. When do you expect to purchase your next vehicle? (Ratio)

- A. < 1 year
- B. 1-3 years
- C. 4-6 years
- D. > 6 years

18. On average, how often do you purchase new vehicles? (Ratio)

- A. Yearly
- B. Every 1-3 years
- C. Every 4-6 years
- D. Every 7-10 years
- E. Only when necessary
- F. N/A

19. Please number the top three features that are most important regarding comfort in your car buying decision, one being the most important. (Ordinal)

\_\_\_\_\_ Air Conditioning      \_\_\_\_\_ Navigation System      \_\_\_\_\_ Heated Seats

\_\_\_\_\_ Keyless Entry      \_\_\_\_\_ Cruise Control      \_\_\_\_\_ Sunroof

\_\_\_\_\_ Bluetooth      \_\_\_\_\_ Sound System      \_\_\_\_\_ Back-up Assistance

20. Please number the top three power and audio features that are most important to you, one being the most important. (Ordinal)

\_\_\_\_\_ Power Locks      \_\_\_\_\_ Power Windows      \_\_\_\_\_ CD Player

\_\_\_\_\_ Power Mirrors      \_\_\_\_\_ Quality Speakers      \_\_\_\_\_ Power Seats

21. Please number the top three safety features that are most important to you, one being the most important. (Ordinal)

\_\_\_\_\_ Front Airbags      \_\_\_\_\_ Side Airbags      \_\_\_\_\_ Rear Airbags  
\_\_\_\_\_ Security System      \_\_\_\_\_ Antilock Brakes      \_\_\_\_\_ 4X4  
\_\_\_\_\_ Traction Control      \_\_\_\_\_ Road-side Assistance      \_\_\_\_\_ On-Star

22. Please choose the option below that most accurately describes how important the appearance of a vehicle is when it comes to buying a new vehicle? (Nominal)

- A. Very Important
- B. Somewhat Important
- C. Neutral
- D. Little Importance
- E. Not Important

23. Are you more concerned with look or efficiency when it comes to purchasing a vehicle? (Nominal)

Look \_\_\_\_\_ Efficiency \_\_\_\_\_

24. Does advertising impact your car buying decision? (Nominal)

Yes \_\_\_\_\_ No \_\_\_\_\_

25. Please rank the following in the order that you would deem to be the most effective method of advertising for new, alternative fuel vehicles. One would be the most effective method while four would be least effective. (Ordinal)

\_\_\_\_\_ TV  
\_\_\_\_\_ Magazine  
\_\_\_\_\_ Radio  
\_\_\_\_\_ Newspaper



*Survey Design:***Advanced Automobile Concepts Questionnaire**

For the purpose of this survey, please answer the following questions referring to the **one** vehicle that you drive most often. If you have never owned a vehicle, please answer the following questions as if you were going to be purchasing a car soon. We appreciate you taking the time to complete our survey! Thank you!

**Demographics**

1. Indicate your gender: \_\_\_\_\_ M (1) \_\_\_\_\_ F (2)

2. Indicate your age:

- |              |              |              |
|--------------|--------------|--------------|
| A. 15-24 (1) | B. 25-34 (2) | C. 35-44 (3) |
| D. 45-54 (4) | E. 55-64 (5) | F. 65 + (6)  |

3. Indicate your average yearly income:

- |                      |                      |                      |
|----------------------|----------------------|----------------------|
| A. <20,000 (1)       | B. 20,000-29,999 (2) | C. 30,000-39,999 (3) |
| D. 40,000-49,999 (4) | E. 50,000-59,999 (5) | F. 60,000-69,999 (6) |
| G. 70,000-79,999 (7) | H. 80,000-89,999 (8) | I. 90,000 + (9)      |

4. Indicate your average household yearly income:

- |                      |                      |                      |
|----------------------|----------------------|----------------------|
| A. < 19,999 (1)      | B. 20,000-29,999 (2) | C. 30,000-39,999 (3) |
| D. 40,000-49,999 (4) | E. 50,000-59,999 (5) | F. 60,000-69,999 (6) |
| G. 70,000-79,999 (7) | H. 80,000-89,999 (8) | I. 90,000 + (9)      |

5. Indicate the highest level of education that you have completed:

- A. Less than High School (1)
- B. High School/GED (2)
- C. Some College (3)
- D. 2-Year College Degree (Associate's Degree) (4)
- E. 4-Year College Degree (Bachelor's Degree) (5)
- F. Master's Degree (6)
- G. Doctoral Degree (7)
- H. Professional Degree (8)

**Lifestyle**

6. Check all of the following leisure activities that you have done in the last 30 days.

- Attend a Sporting Event (0;1)     Go to a Movie (0;1)  
 Attend a Political Event (0;1)     Go to a Park(0;1)  
 Attend a Religious Event (0;1)     Go to a Mall (0;1)  
 Attend a Theatre Event (0;1)     Go to a Concert (0;1)  
 Go to a Museum (0;1)     Attend a Festival (0;1)  
 Go to a Theme Park (0;1)     Other  
(Individually Type In)

7. Check all of the following sports in which you have participated in within the last 30 days.

- Hiking (0;1)     Golf (0;1)     Soccer (0;1)  
 Swimming (0;1)     Football (0;1)     Biking (0;1)  
 Basketball (0;1)     Tennis (0;1)     Tennis (0;1)  
 Walking (0;1)     Baseball (0;1)     Running (0;1)  
 Horseback Riding (0;1)     Fishing (0;1)     Other  
(Individually Type In)

8. Select your level of agreement based on the following statements, 1 being strongly agree and 5 being strongly disagree. (No pre-code is needed because respondent will circle a number from 1-5)

- |   |   |   |   |   |   |
|---|---|---|---|---|---|
| a. I like to travel.                            | 1 | 2 | 3 | 4 | 5 |
| b. I like to eat at restaurants.                | 1 | 2 | 3 | 4 | 5 |
| c. I like to socialize and go out with friends. | 1 | 2 | 3 | 4 | 5 |
| d. I like to spend time with my family.         | 1 | 2 | 3 | 4 | 5 |
| e. I like to drink.                             | 1 | 2 | 3 | 4 | 5 |
| f. I like to read.                              | 1 | 2 | 3 | 4 | 5 |
| g. I am concerned with fashion.                 | 1 | 2 | 3 | 4 | 5 |
| h. I like watching television.                  | 1 | 2 | 3 | 4 | 5 |
| i. I like to try new things.                    | 1 | 2 | 3 | 4 | 5 |

**Media**

9. How often did you read the newspaper in the past week? If you do not read the newspaper, skip to question 11.

- A. 1-2 days (1)
- B. 3-4 days (2)
- C. 5-6 days (3)
- D. 7 + days (4)

10. Which type of newspaper do you typically read? Please check all that apply.

\_\_\_\_\_ Local (1)          \_\_\_\_\_ State (2)          \_\_\_\_\_ National (3)

11. How often did you watch the news in the past week? If you did not watch the news in the past week, please skip to question 13.

- A. 1-2 days (1)
- B. 3-4 days (2)
- C. 5-6 days (3)
- D. 7 + days (4)

12. What time of day do you tend to watch the news? Check all that apply.

\_\_\_\_\_ 6 AM (1)    \_\_\_\_\_ 8 AM (2)    \_\_\_\_\_ 6PM (3)    \_\_\_\_\_ 10 PM (4)

13. How many day sin the past week did you listen to FM Radio? Please skip to question 15 if you did not listen to FM Radio in the past week.

- A. 1-2 days (1)
- B. 3-4 days (2)
- C. 5-6 days (3)
- D. 7+ days (4)

14. Please check all of the FM stations that you listened to in the past week.

- |  |  |   |
|--|--|---|
| <input type="checkbox"/> Talk (0;1)    | <input type="checkbox"/> Classic Rock (0;1)  | <input type="checkbox"/> Christian (0;1)                  |
| <input type="checkbox"/> Jazz (0;1)    | <input type="checkbox"/> Easy Listening(0;1) | <input type="checkbox"/> Alternative (0;1)                |
| <input type="checkbox"/> News(0;1)     | <input type="checkbox"/> Contemporary (0;1)  | <input type="checkbox"/> Classical (0;1)                  |
| <input type="checkbox"/> Country (0;1) | <input type="checkbox"/> Hip Hop (0;1)       | <input type="checkbox"/> Top 40 (0;1)                     |
| <input type="checkbox"/> Oldies (0;1)  | <input type="checkbox"/> Rock (0;1)          | <input type="checkbox"/> Gospel (0;1)                     |
| <input type="checkbox"/> Rap (0;1)     | <input type="checkbox"/> Blue Grass (0;1)    | <input type="checkbox"/> Others<br>(Individually Type In) |

15. How many times in the past week have you read a magazine? Please skip to question 17 if you have not read a magazine in the past week.

- A. 1-2 days (1)
- B. 3-4 days (2)
- C. 5-6 days (3)
- D. 7 + days (4)

16. Check all of the following magazine types that you have read in the past week.

- |   |  |  |
|---|--|--|
| <input type="checkbox"/> General Interest (0;1) | <input type="checkbox"/> Health (0;1)  | <input type="checkbox"/> Celebrity (0;1) |
| <input type="checkbox"/> Business (0;1)         | <input type="checkbox"/> Fitness (0;1) | <input type="checkbox"/> News (0;1)      |
| <input type="checkbox"/> Entertainment (0;1)    | <input type="checkbox"/> Cooking (0;1) | <input type="checkbox"/> Sports (0;1)    |
| <input type="checkbox"/> Home & Garden (0;1)    | <input type="checkbox"/> Fashion (0;1) | <input type="checkbox"/> Science (0;1)   |

**Attitudes**

17. Rank the following combinations of fuel-efficient automobiles based on your level of intent or desire to purchase, one being the most desirable option and four being the least desirable option. (No pre-code is needed because respondent will rank the options with a number from 1-4)

\_\_\_\_\_ Very small (1 seat), no trunk space, and very high mpg

\_\_\_\_\_ Small (2 seat), very limited trunk space, and high mpg

\_\_\_\_\_ Medium (4 seats), fair trunk space, and good mpg

\_\_\_\_\_ Large (5+ seats), large trunk space, and fair mpg

18. Would you ever consider purchasing a synthetic fuel hybrid?

\_\_\_\_\_ Yes (1)      \_\_\_\_\_ No (2)

19. Would you ever consider purchasing an electric hybrid?

\_\_\_\_\_ Yes (1)      \_\_\_\_\_ No (2)

20. Please check the following alternative fuel models that you are aware of.

\_\_\_\_\_ Solar Cars (1)

\_\_\_\_\_ Battery-Electric (2)

\_\_\_\_\_ Compressed Natural Gas (3)

\_\_\_\_\_ Hydrogen (4)

\_\_\_\_\_ Hybrid (5)

21. Please circle the number that corresponds with your level of agreement, one being that you strongly agree and five being that you strongly disagree. (No pre-code is needed because respondents will circle a number from 1-5)

- |  |   |   |   |   |   |
|--|---|---|---|---|---|
| a. Global warming is a serious issue.  | 1 | 2 | 3 | 4 | 5 |
| b. I am deeply concerned with how global warming might be affecting the environment.               | 1 | 2 | 3 | 4 | 5 |
| c. The idea of global warming would affect the next car that I purchase.                           | 1 | 2 | 3 | 4 | 5 |
| d. I believe gasoline directly impacts global warming.   | 1 | 2 | 3 | 4 | 5 |
| e. I believe gas prices will remain high for several years.  | 1 | 2 | 3 | 4 | 5 |
| f. Gas prices have impacted my social life.  | 1 | 2 | 3 | 4 | 5 |
| g. Gas mileage is an important vehicle element for me.   | 1 | 2 | 3 | 4 | 5 |
| h. I am brand loyal when it comes to vehicles.   | 1 | 2 | 3 | 4 | 5 |
| i. I would consider switching brands in order to purchase a vehicle that got a better gas mileage. | 1 | 2 | 3 | 4 | 5 |
| j. I am satisfied with my current vehicle.   | 1 | 2 | 3 | 4 | 5 |

22. Please rank the following vehicle types in order from 1-3 based on which vehicle you would purchase first, one being your first choice and three being your last choice. (No pre-code is needed because respondents will fill in a number from 1-3)

\_\_\_\_\_ Very small auto (1 seat) with high mpg rating

\_\_\_\_\_ Small autos (2 seat) with high mpg ratings

\_\_\_\_\_ Hybrid compact-size autos with moderately high mpg ratings

23. Knowing that trunk space affects a vehicle's gas mileage, please select which option you would prefer.

- A. No trunk space (1)
- B. Limited trunk space (2)
- C. Moderate trunk space (3)
- D. Large trunk space (4)

Thank you for taking the time to complete our survey. We greatly appreciate your participation and your results will be of great value to our company.

## Unit 5: Sampling Considerations for AAC

### *Population Definition:*

A proper population definition for Nick is:

“The head of every household in the United States, including those who own a vehicle as well as those who are expected to purchase a vehicle within the next five years.”

### *Probability Sampling Method:*

If a probability sampling method were used, a reasonable sample frame would vary based on the data collection method:

- a. A sample frame for a telephone survey would include phone numbers of every household from every phone book in the United States.
- b. A sample frame for a mail survey would include a list of addresses gathered from every post office in the United States.
- c. A sample frame for an online survey would include a list of all people who have an email address in the United States.

### *Simple Random Sampling Problems:*

Although simple random sampling would guarantee every household in the United States an equal chance of being selected into the sample, it comes with its disadvantages. In order to select individuals from a simple random sample, surveyors would need a complete listing of the population, which can be very difficult to obtain accurately. If a part of the United States population was missed, this could result in sample frame error. Also, if the surveyors did have a list, it is likely that some of the information will be inaccurate. This could lead to sample frame error as well.



*Random Digit Dialing:*

Random digit dialing has established itself as an efficient use of simple random sampling. Random digit dialing is used in telephone surveys to overcome the problems of unlisted and new telephone numbers. Considering that most companies already have computerized databases, it is very easy for them to pull random phone numbers from those databases to use in the form of interviews. If companies are only interested in certain geographic areas, most databases are sophisticated enough to pull numbers specific to the desired location.

Unfortunately, like every other sampling method, random digit dialing comes with its own weaknesses. One such problem is that of unlisted numbers. The use of cell phones has reduced the number of households that make use of a landline, which is necessary in order for them to be listed in the phone book. In particular, this would affect Nick if he chose to administer a telephone survey of every household in the United States. He could easily miss individuals who are not listed in the phone book. Another problem with random digit dialing is that a large number of calls may be made to nonexistent phone numbers. People are constantly moving, which means they will be disconnecting their numbers until they have resettled into a new household.

*Online Paneling:*

Online panel sampling could offer many benefits to Advanced Automobile Concepts. Nick and his researchers are looking to gain information that is applicable to the entire U.S. population, which could easily be made possible through online paneling. Advantages of online panel sampling include speed, convenience, flexibility, high

response rate, and a vast selection of participants. While the database for this particular sampling method may be limitless, researchers could specify parameters upon selecting which individuals to select depending on the survey.

I think Advanced Automobile Concepts could make substantial gains if they were to participate in online panel sampling. This particular form of sampling comes with very few disadvantages. One of the concerns Nick should consider if he were to use panel sampling is the people who do not have access to the Internet. Another disadvantage would be that the survey would have to appear simple and self-explanatory. Since individuals would be completing the survey on their own, they would not be able to ask for clarifications if they were to get confused. Although online panel sampling has its disadvantages, the costs associated with it are relatively cheap. Therefore, I do not think it would hurt to give this method of sampling a shot.

*Sample Error:*

*Table 13.1: Sample Error and Expected Cost of the Sample*

<b>Panel Sample</b>	<b>Sample Error</b>	<b>Cost of the Sample</b>
<b>20,000</b>	± 0.7%	\$200,000
<b>10,000</b>	± 1.0%	\$100,000
<b>5,000</b>	± 1.4%	\$50,000
<b>2,500</b>	± 2.0%	\$25,000
<b>1,000</b>	± 3.1%	\$10,000
<b>500</b>	± 4.4%	\$5,000

*\*Sample error percentages are rounded to the tenth decimal place*

The cost of the sample is derived from the fact that each panel respondent would receive \$10 in exchange for his or her participation in the survey. The sample error is calculated based on the assumption that there will be a 50-50 split in answers of

respondents. This assumption was made in order to account for maximum variability.

As you can see, the sample error decreases while the number of panel members increases.

However, it is important to note that there is very little gain in the accuracy of the sample after we reach 1,000 participants.

## **Unit 6: Data Collection, Analysis, and Interpretation**

### *Sample Demographic Composition:*

The demographic information that was used for the online panel is presented below in tables 15.1 to 15.9. Of the nine demographic variables used in this survey, there were relatively equal distribution rates within each variable. In other words, there was typically a similar amount of respondents for each category within the variable. This is clearly evident in tables 15.2, which refers to gender. As you can see here, there are 505 males and 495 females. Such diversity increases the validity of the survey while reducing the chances of survey bias.

The composition from the demographic tables can be used to further help you analyze the remaining output, which is found in tables 15.10 to 15.18. Based off the information in those tables, I concurred that most respondents were very concerned with the threat of global warming. Of the 1,000 respondents, 688 of them agreed that we needed to do something to slow global warming. Another observation that I was able to make was that a large number of respondents felt that gasoline consumption was high and that we needed to search for gasoline substitutes in order to reduce the rate of global warming.

Tables 15.19 to 15.21 discuss what type of vehicle that respondents would be interested in as well as their intent to purchase a new vehicle in the next three years. The results from these questions show that most respondents preferred a standard, four-seat vehicle that would either stable gasoline prices or lower gasoline prices. If these individuals were to purchase a new vehicle in the next three years, the likelihood of it being anything other than standard size displayed poor results. If ZEN Motors wishes to

profit from manufacturing a new model, they would have the most success with a standard, economy size model.

*Table 15.1: Size of Home Town or City*

Size of Home Town/City	Frequency	Percent
<b>Under 10,000</b>	154	15.4
<b>10,000 to 99,999</b>	177	17.6
<b>100,000 to 499,999</b>	176	17.6
<b>500,000 to 1 million</b>	226	22.6
<b>1 million and more</b>	267	26.7
<b>Total</b>	1000	100.0

*Table 15.2: Gender*

Gender	Frequency	Percent
<b>Male</b>	505	50.5
<b>Female</b>	495	49.5
<b>Total</b>	1000	100.0

*Table 15.3: Marital Status*

Marital Status	Frequency	Percent
<b>Unmarried</b>	487	48.7
<b>Married</b>	513	51.3
<b>Total</b>	1000	100.0

*Table 15.4: Number of people in household*

Number of people in household	Frequency	Percent
<b>1</b>	395	39.5
<b>2</b>	307	30.7
<b>3</b>	109	10.9
<b>4</b>	104	10.4
<b>5</b>	64	6.4
<b>6</b>	13	1.3
<b>7</b>	5	.5
<b>8</b>	2	.2
<b>9</b>	1	.1
<b>Total</b>	1000	100.0

*Table 15.5: Age*

Age	Frequency	Percent
<b>Between 18 and 24</b>	121	12.1
<b>Between 25 and 34</b>	174	17.4
<b>Between 35 and 49</b>	256	25.6
<b>Between 50 and 64</b>	239	23.9
<b>65 and older</b>	210	21.0
<b>Total</b>	1000	100.0

*Table 15.6: Level of education*

Education Level	Frequency	Percent
<b>Did not complete High School</b>	194	19.4
<b>High School Degree</b>	298	29.8
<b>Some College</b>	214	21.4
<b>College Degree</b>	222	22.2
<b>Post-undergraduate Degree</b>	72	7.2
<b>Total</b>	1000	100.0

*Table 15.7: Job*

<b>Job</b>	<b>Frequency</b>	<b>Percent</b>
<b>Managerial and Professional</b>	246	24.6
<b>Sales and Office Service</b>	285	28.5
<b>Agricultural and Natural Resources</b>	29	2.9
<b>Precision Production, Craft, Repair</b>	75	7.5
<b>Operation, Fabrication, General Labor</b>	102	10.2
<b>Retired</b>	143	14.3
<b>Total</b>	1000	100.0

*Table 15.8: Income*

<b>Income</b>	<b>Frequency</b>	<b>Percent</b>
<b>Under \$25,000</b>	256	25.6
<b>Between \$25,000 and \$49,999</b>	343	34.3
<b>Between \$50,000 and \$74,999</b>	194	19.4
<b>Between \$75,000 and \$124,999</b>	137	13.7
<b>\$125,000 and higher</b>	70	7.0
<b>Total</b>	1000	100.0

*Table 15.9: Dwelling type*

<b>Dwelling Type</b>	<b>Frequency</b>	<b>Percent</b>
<b>Single-family</b>	452	45.2
<b>Multiple-family</b>	296	29.6
<b>Condominium/Townhouse</b>	185	18.5
<b>Mobile Home</b>	67	6.7
<b>Total</b>	1000	100.0

*Automobile Ownership Profile:**Table 15.10: Primary Vehicle Price Type*

Primary Vehicle Price Type	Frequency	Percent
<b>No vehicle</b>	100	10.0
<b>Economy</b>	455	45.5
<b>Standard</b>	271	27.1
<b>Luxury</b>	174	17.4
<b>Total</b>	1000	100.0

*Table 15.11: Primary Vehicle Type*

Primary Vehicle Type	Frequency	Percent
<b>No vehicle</b>	100	10.0
<b>Car</b>	432	43.2
<b>Pick-Up Truck</b>	210	21.0
<b>SUV, Van</b>	258	25.8
<b>Total</b>	1000	100.0

*Table 15.12: Type of Commuting*

Type of Commuting	Frequency	Percent
<b>Single Occupancy</b>	588	58.8
<b>Multiple Occupancy</b>	62	6.2
<b>Public Transportation</b>	188	18.8
<b>Non-motorized</b>	125	12.5
<b>Telecommute</b>	37	3.7
<b>Total</b>	1000	100.0



*Global Warming Attitudes and Beliefs:**Table 15.13: Worried about Global Warming*

<b>Worried about Global Warming</b>	<b>Frequency</b>	<b>Percent</b>
<b>Very strongly disagree</b>	15	1.5
<b>Strongly disagree</b>	25	2.5
<b>Disagree</b>	38	3.8
<b>Neither disagree nor agree</b>	76	7.6
<b>Agree</b>	88	8.8
<b>Strongly agree</b>	130	13.0
<b>Very strongly agree</b>	628	62.8
<b>Total</b>	1000	100.0

*Table 15.4: Global warming is a real threat.*

<b>Global warming is a real threat.</b>	<b>Frequency</b>	<b>Percent</b>
<b>Very Strongly disagree</b>	50	5.0
<b>Strongly disagree</b>	42	4.2
<b>Disagree</b>	65	6.5
<b>Neither disagree nor agree</b>	95	9.5
<b>Agree</b>	97	9.7
<b>Strongly agree</b>	127	12.7
<b>Very strongly agree</b>	524	52.4
<b>Total</b>	1000	100.0

*Table 15.5: Need to slow global warming*

<b>Need to slow global warming</b>	<b>Frequency</b>	<b>Percent</b>
<b>Very strongly disagree</b>	57	5.7
<b>Strongly disagree</b>	71	7.1
<b>Disagree</b>	52	5.2
<b>Neither disagree nor agree</b>	132	13.2
<b>Agree</b>	113	11.3
<b>Strongly agree</b>	147	14.7
<b>Very strongly agree</b>	428	42.8
<b>Total</b>	1000	100.0

*Table 15.16: Gasoline emissions contribute to global warming.*

	<b>Frequency</b>	<b>Percent</b>
<b>Very strongly disagree</b>	140	14.0
<b>Strongly disagree</b>	97	9.7
<b>Disagree</b>	59	5.9
<b>Neither disagree nor agree</b>	127	12.7
<b>Agree</b>	75	7.5
<b>Strongly agree</b>	91	9.1
<b>Very strongly agree</b>	411	41.1
<b>Total</b>	1000	100.0

*Table 15.17: Americans use too much gasoline.*

	<b>Frequency</b>	<b>Percent</b>
<b>Very strongly disagree</b>	69	6.9
<b>Strongly disagree</b>	98	9.8
<b>Disagree</b>	80	8.0
<b>Neither disagree nor agree</b>	144	14.4
<b>Agree</b>	112	11.2
<b>Strongly agree</b>	94	9.4
<b>Very strongly agree</b>	403	40.3
<b>Total</b>	1000	100.0

*Table 15.18: We should be looking for gasoline substitutes.*

	Frequency	Percent
<b>Very strongly disagree</b>	113	11.3
<b>Strongly disagree</b>	73	7.3
<b>Disagree</b>	71	7.1
<b>Neither disagree nor agree</b>	90	9.0
<b>Agree</b>	110	11.0
<b>Strongly agree</b>	117	11.7
<b>Very strongly agree</b>	426	42.6
<b>Total</b>	1000	100.0

*Preferences for Various Types of Hybrid Automobile Models:*

*Table 15.19: Preference for various types of hybrid automobile models.*

	Mean	Standard Deviation
<b>Super Cycle 1 seat</b>	3.30	1.744
<b>Runabout Sport 2 seat</b>	4.27	1.712
<b>Runabout with Luggage 2 seat</b>	3.79	1.866
<b>Economy 4 seat</b>	3.49	1.839
<b>Standard 4 seat</b>	4.96	1.626

*\*Note: Variables were measured with a scale of 1-7 where 1="very undesirable" and 7="very desirable."*

*Effects of New Automobile Types:**Table 15.20: Effects of new automobile types*

	Mean	Standard Deviation
<b>Very small autos with very high mpg's will reduce fuel emissions.</b>	4.83	2.079
<b>Very small autos with very high mpg's will keep gas prices stable.</b>	4.50	2.343
<b>Very small autos with very high mpg's will slow down global warming.</b>	3.46	2.197
<b>Small autos with high mpg's will reduce fuel emissions.</b>	3.95	2.247
<b>Small autos with high mpg's will keep gas prices stable.</b>	4.91	2.523
<b>Small autos with high mpg's will slow down global warming.</b>	4.47	2.296
<b>Hybrid autos that use alternative fuels will reduce fuel emissions.</b>	5.10	2.052
<b>Hybrid autos that use alternative fuels will keep gas prices down.</b>	5.77	2.157
<b>Hybrid autos that use alternative fuels will slow down global warming.</b>	4.06	2.133

*\*Note: Variables were measured with a 7-point Likert scale, where 1 = "very strongly disagree" and 7 = "very strongly agree."*

*Probabilities of Buying Hybrid Automobile Types:**Table 15.21: Probabilities of buying hybrid automobile types within 3 years*

	Mean	Standard Deviation
<b>Probability of buying a very small (1 seat) hybrid auto</b>	13.78	23.088
<b>Probability of buying a small (2 seat) hybrid auto</b>	20.59	19.285
<b>Probability of buying a standard size hybrid auto</b>	30.12	21.205
<b>Probability of buying a standard size synthetic fuel auto</b>	40.17	21.465
<b>Probability of buying a standard size electric auto</b>	34.64	22.090

*\*Note: Variables were measured on a 100-point probability scale*

*Survey Generalization Analysis:*

Questions one and two below are simply asked for frequency test results. I combined the information from table 15.10 and 15.11 in order to provide the information that was asked for specifically in the textbook. The table in question two displays part of the information from table 15.20. Of the 1,000 individuals surveyed, most people disagreed with the idea that hybrid automobiles will keep gas prices down or that they will reduce fuel emissions.

Question 3, on the other hand, utilized a one-sample t test. Since the significance level was  $<.05$ , I was able to accept the null, meaning that I am 95% confident that somewhere between 33.84% and 36.50% of the population will purchase a standard size synthetic fuel hybrid automobile within the next 3 years. Even if the sample size were increased from 1,000 to 25,000 individuals, I would still remain 95% confident that anywhere from 33.84% to 36.50% of the population would purchase a standard size synthetic fuel hybrid auto within the next 3 years.

Question 4 provides a table with estimates for the number of hybrid vehicles that will be sold over the next 3 years depending on the type of hybrid. In order to formulate this estimate, I took the mean, which was provided, and converted it into a percent. I then used the percent and multiplied it by the number of American households (111,617,402), which I then divided by three years in order to come up with the estimated yearly sales.

*Table 16.1: Automobile Ownership*

<b>Automobile Ownership</b>	<b>Valid Frequency Percent</b>
<b>Standard Vehicle</b>	27.1%
<b>Luxury Vehicle</b>	17.4%
<b>SUV or van</b>	25.8%
<b>Other</b>	29.7%
<b>Total</b>	100%

*\*Note: Table 16.1 is a combination of two separate tables because it asks specifically for standard vehicle, luxury vehicle, and SUV or van.*

Table 16.2: Attitudes towards new automobile types

	Mean
Hybrid autos that use alternative fuels will reduce fuel emissions.	5.10
Hybrid autos that use alternative fuels will keep gas prices down.	5.77
Hybrid autos that use alternative fuels will slow down global warming.	4.06

*\*Note: Measured with a 7-point Likert scale, where 1= "very strongly disagree" and 7= "very strongly disagree."*

Table 16.3: Probabilities of buying hybrid automobile types

	Significance (2 tailed)	Lower	Upper
Probability of buying a very small (1 seat) hybrid auto within 3 years	.000	7.35	10.21
Probability of buying a small (2 seat) hybrid auto within 3 years	.000	14.39	16.79
Probability of buying a standard size hybrid auto within 3 years	.000	23.80	26.44
Probability of buying a standard size synthetic fuel auto within 3 years	.000	33.84	36.50
Probability of buying a standard size electric auto within 3 years	.000	28.27	31.01

*\*Note: This statistics are based off of a 95% confidence interval and a test value of 5.*

*Table 16.4: Hybrid types of automobiles that are expected to be purchased over the next three years*

	Mean	Forecasted Sales Formula	Forecasted Sales Per Year
<b>Probability of buying a small (1 seat) hybrid auto within 3 years</b>	13.78	$\frac{(13.78\% * 111,617,402)}{3}$	512,696
<b>Probability of buying a small (2 seat) hybrid auto within 3 years</b>	20.59	$\frac{(20.59\% * 111,617,402)}{3}$	766,067
<b>Probability of buying a standard size hybrid auto within 3 years</b>	30.12	$\frac{(30.12\% * 111,617,402)}{3}$	1,120,638
<b>Probability of buying a standard size synthetic auto within 3 years</b>	40.17	$\frac{(40.17 * 111,617,402)}{3}$	1,494,557
<b>Probability of buying a standard size electric auto within 3 years</b>	34.64	$\frac{(34.64 * 111,617,402)}{3}$	1,288,809



*Survey Differences Analysis:*

For tables 17.1 and 17.2, it is important to note the significance levels and how they relate to the mean. If the significance level is  $>.05$ , then we will reject the null hypothesis. On the other hand, if the significance level is  $<.05$ , we accept the null. For example, in table 17.1, the significance (2 tailed), of super cycle 1 seat hybrids is .000. In this case, the null is that males and females have different preferences when it comes to one-seat hybrids. Since it is .000, we understand that the difference between male and female preferences is significant. Males prefer the one-seat hybrid more than females do.

The same information holds true for table 17.2. There is a significant difference between the number of married individuals versus the number of unmarried individuals who prefer a standard, four-seat hybrid. By comparing these variables using SPSS, I was able to uncover that married individuals found the standard four-seat hybrid to be much more desirable than did unmarried individuals. A significance level below .05 allows me to accept the null that the preferences of married versus unmarried for standard, four-seat hybrids differed significantly.

Table 17.1: Hybrid target market based off of gender

	Gender	N	Mean	Significance	Significance (2 tailed)
<b>Preference: Super Cycle 1 seat hybrid</b>	Male	505	3.50	.761	.000
	Female	495	3.09		.000
<b>Preference: Runabout Sport 2 seat hybrid</b>	Male	505	4.24	.985	.649
	Female	495	4.29		.649
<b>Preference: Runabout with Luggage 2 seat hybrid</b>	Male	505	3.85	.374	.293
	Female	495	3.72		.293
<b>Preference: Economy 4 seat hybrid</b>	Male	505	3.54	.421	.449
	Female	495	3.45		.449
<b>Preference: Standard 4 seat hybrid</b>	Male	505	4.82	.201	.007
	Female	495	5.10		.007

Table 17.2: Hybrid target market based off of marital status

	Marital Status	N	Mean	Significance	Significance (2 tailed)
<b>Preference: Super Cycle 1 seat hybrid</b>	Unmarried	487	4.09	.000	.000
	Married	513	2.54		.000
<b>Preference: Runabout Sport 2 seat hybrid</b>	Unmarried	487	4.72	.730	.000
	Married	513	3.83		.000
<b>Preference: Runabout with Luggage 2 seat hybrid</b>	Unmarried	487	3.53	.000	.000
	Married	513	4.03		.000
<b>Preference: Economy 4 seat hybrid</b>	Unmarried	487	3.43	.976	.285
	Married	513	3.56		.285
<b>Preference: Standard 4 seat hybrid</b>	Unmarried	487	4.55	.002	.000
	Married	513	5.35		.000

The five tables below (17.3A through 17.3E) display the age demographics for the target market based on the five preferred hybrid models. All tables are based on a 95% confidence interval. Comparing age with preferred models, you will see that the super cycle 1 seat hybrid and the runabout sport 2-seat hybrid has a significant difference for those in the age group of 18 to 24. In other words, it would be beneficial for ZEN to target individuals between the ages of 18 and 24 for the super cycle 1-seat and the runabout sport 2-seat.

Table 17.3C shows that individuals between the ages of 25 and 34 preferred a runabout with luggage 2 seat hybrid. Table 17.3D shows that individuals between the ages of 50 and 64 had a stronger preference towards the economy 4 seat hybrid. The standard 4-seat hybrid is most preferred by individuals between 35 and 49. Columns one through three in each table below shows significant differences.

*Age Category:*

*Table 17.3A. Preference: Super Cycle 1-seat hybrid*

<b>Age Category</b>	<b>N</b>	<b>1</b>	<b>2</b>	<b>3</b>
<b>Between 50 and 64</b>	239	2.55		
<b>Between 35 and 49</b>	256		3.21	
<b>65 and older</b>	210		3.28	
<b>Between 25 and 34</b>	174		3.33	
<b>Between 18 and 24</b>	121			4.94
<b>Sig.</b>		1.000	.500	1.000

Table 17.3B. Preference: Runabout Sport 2-seat hybrid

Age Category	N	1	2	3
Between 50 and 64	239	3.42		
Between 25 and 34	174		4.17	
Between 35 and 49	256		4.34	
65 and older	210		4.37	
Between 18 and 24	121			5.73
<b>Sig.</b>		1.000	.242	1.000

Table 17.3C. Preference: Runabout with Luggage 2-seat hybrid

Age Category	N	1	2	3
Between 50 and 64	239	3.43		
65 and older	210	3.51		
Between 35 and 49	256	3.52		
Between 18 and 24	121		4.25	
Between 25 and 34	174			4.67
<b>Sig.</b>		.660	1.000	1.000

Table 17.3D. Preference: Economy 4-seat hybrid

Age Category	N	1	2	3	4	5
Between 18 and 24	121	1.82				
Between 25 and 34	174		2.48			
Between 35 and 49	256			3.55		
65 and older	210				4.00	
Between 50 and 64	239					4.58
<b>Sig.</b>		1.000	1.000	1.000	1.000	1.000

*Table 17.3E. Preference: Standard 4-seat hybrid*

Age Category	N	1	2	3
<b>Between 18 and 24</b>	121	4.16		
<b>Between 25 and 34</b>	174	4.30		
<b>65 and older</b>	210		4.80	
<b>Between 50 and 64</b>	239			5.34
<b>Between 35 and 49</b>	256			5.56
<b>Sig.</b>		.355	1.000	.177

*Education Category:*

By comparing the respondent's level of education with preferences of different hybrid models, I found that individuals who obtained a high school degree scored a 3.65, which is higher than the next highest group. Although 3.65 is higher, it is relatively close to the middle of the 7 point scale that was used, and therefore, is very useful. As you will see in in table 17.4E, individuals with a college degree rang in at 5.68, which is very distinctive in the sense that it is "desirable" for those individuals. 5.68 is notably higher than the 4.93 from the next highest group. Again, it is important to note that these tables were run using a 95% confidence interval.

Table 17.4A. Preference Super Cycle 1-seat hybrid

Level of education	N	1	2	3
Post- undergraduate degree	72	1.93		
College degree	222		2.69	
Some college	214			3.58
Did not complete high school	194			3.63
High school degree	298			3.65
<b>Sig.</b>		1.000	1.000	.751

Table 17.4B. Preference: Runabout Sport 2 seat hybrid

Level of education	N	1	2
Post- undergraduate degree	72	3.29	
College degree	222	3.43	
Some college	214		4.56
Did not complete high school	194		4.73
High school degree	298		4.61
<b>Sig.</b>		.439	.381

Table 17.4C. Preference: Runabout with Luggage 2 seat hybrid

Level of education	N	1	2
Post-undergraduate degree	72	3.15	
College degree	222		4.35
Some college	214		4.63
Did not complete high school	194	3.32	
High school degree	298	3.32	
<b>Sig.</b>		.418	.159

Table 17.4D. Preference: Economy 4-seat hybrid

Level of education	N	1	2	3
Post-undergraduate degree	72			4.60
College degree	222			4.83
Some college	214		3.62	
Did not complete high school	194	2.70		
High school degree	298	2.66		
<b>Sig.</b>		.825	1.000	.199

Table 17.4E. Preference: Standard 4-seat hybrid

Level of education	N	1	2	3
<b>Post-undergraduate degree</b>	72			5.61
<b>College degree</b>	222			5.68
<b>Some college</b>	214		4.93	
<b>Did not complete high school</b>	194	4.08		
<b>High school degree</b>	298		4.87	
<b>Sig.</b>		1.000	.730	.708

*Income Category*

The use of a One-Way ANOVA test forecasted the comparisons that are found below in tables 17.5A-17.5E. Based on the numbers in these tables, I would suggest that ZEN Motors markets a super cycle 1-seat hybrid and the runabout sport 2-seat hybrid to individuals who make below \$25,000. Both tables display a meaningful difference with 4.25 and 5.09, which are both on the positive side of the preference scale. These numbers are also significantly higher than the next highest group.

As the vehicles get larger in size (from 1-seat to the standard, 4-seat), the desired individuals were shown to have a larger income. For example, most individuals interested in the super cycle 1-seat hybrid were making under \$25,000. If you look in table 17.5E though, individuals who are interested in the standard 4-seat hybrid have an income level of \$125,000 or higher. These numbers are also based off of a 95% confidence interval.



*Table 17.5A. Preference: Super Cycle 1-seat hybrid*

Income Category	N	1	2	3	4
<b>Under \$25,000</b>	256				4.25
<b>Between \$25,000 and \$49,999</b>	343			3.57	
<b>Between \$50,000 and \$74,999</b>	194		2.57		
<b>Between \$75,000 and \$124,999</b>	137		2.62		
<b>\$125,000 and higher</b>	70	1.80			
<b>Sig.</b>		1.000	.769	1.000	1.000

*Table 17.5B. Preference: Runabout Sport 2-seat hybrid*

Income Category	N	1	2	3	4
<b>Under \$25,000</b>	256				5.09
<b>Between \$25,000 and \$49,999</b>	343			4.67	
<b>Between \$50,000 and \$74,999</b>	194		3.61		
<b>Between \$75,000 and \$124,999</b>	137		3.47		
<b>\$125,000 and higher</b>	70	2.64			
<b>Sig.</b>		1.000	.452	1.000	1.000

*Table 17.5C. Preference: Runabout with Luggage 2-seat hybrid*

Income Category	N	1	2	3
<b>Under \$25,000</b>	256		3.07	
<b>Between \$25,000 and \$49,999</b>	343			4.71
<b>Between \$50,000 and \$74,999</b>	194			4.45
<b>Between \$75,000 and \$124,999</b>	137	2.61		
<b>\$125,000 and higher</b>	70	2.34		
<b>Sig.</b>		.163	1.000	.172

*Table 17.5D. Preference: Economy 4-seat hybrid*

Income Category	N	1	2	3
<b>Under \$25,000</b>	256	2.68		
<b>Between \$25,000 and \$49,999</b>	343	2.86		
<b>Between \$50,000 and \$74,999</b>	194		3.64	
<b>Between \$75,000 and \$124,999</b>	137			5.50
<b>\$125,000 and higher</b>	70			5.24
<b>Sig.</b>		.317	1.000	.151

*Table 17.5E. Preference: Standard 4-seat hybrid*

Income Category	N	1	2	3	4
<b>Under \$25,000</b>	256	4.49			
<b>Between \$25,000 and \$49,999</b>	343		4.87		
<b>Between \$50,000 and \$74,999</b>	194			5.23	
<b>Between \$75,000 and \$124,999</b>	137			5.31	5.31
<b>\$125,000 and higher</b>	70				5.67
<b>Sig.</b>		1.000	1.000	.657	.053

*Hometown size category*

Summarizing tables 17.6A through 17.6E, based off of a 95% confidence interval, I think it is safe to say that the larger towns prefer smaller models, which the smaller towns prefer the larger models. There is a significant difference between groups, which shows that cities or towns with over 1 million individuals preferred the runaround sport 2-seat hybrid. 5.25 scores on the positive side of the preference scale and is remarkably than 4.41, which is the next closest group. If you take those results and compare them to table 17.6D, you will see that the economy 4-seat hybrid would serve best in cities or towns with 100,000 to 1 million residents. 4.24 is on the positive side of the preference scales and is higher than the next closest group, with a 3.53 score.

*Table 17.6A. Preference: Super Cycle 1-seat hybrid*

Size of home town or city	N	1	2	3
<b>Under 10,000</b>	154	2.38		
<b>10,000 to 99,999</b>	177	2.58		
<b>100,000 to 499,999</b>	176		3.22	
<b>500,000 to 1 million</b>	226		3.42	
<b>1 million and more</b>	267			4.25
<b>Sig.</b>		.211	.236	1.000

*Table 17.6B. Runabout Sport 2-seat hybrid*

Size of home town or city	N	1	2	3
<b>Under 10,000</b>	154	3.23		
<b>10,000 to 99,999</b>	177	3.51		
<b>100,000 to 499,999</b>	176		4.26	
<b>500,000 to 1 million</b>	226		4.41	
<b>1 million and more</b>	267			5.25
<b>Sig.</b>		.083	.358	1.000

*Table 17.6C. Runabout with Luggage 2-seat hybrid*

Size of home town or city	N	1	2	3	4
<b>Under 10,000</b>	154		3.21		
<b>10,000 to 99,999</b>	177		3.22		
<b>100,000 to 499,999</b>	176	2.32			
<b>500,000 to 1 million</b>	226			4.23	
<b>1 million and more</b>	267				5.08
<b>Sig.</b>		1.000	.938	1.000	1.000

*Table 17.6D. Economy 4-seat hybrid*

Size of home town or city	N	1	2	3
<b>Under 10,000</b>	154		3.38	
<b>10,000 to 99,999</b>	177		3.53	
<b>100,000 to 499,999</b>	176			4.06
<b>500,000 to 1 million</b>	226			4.24
<b>1 million and more</b>	267	2.54		
<b>Sig.</b>		1.000	.397	.303

*Table 17.6E. Standard 4-seat hybrid*

Size of home town or city	N	1	2
<b>Under 10,000</b>	154		5.42
<b>10,000 to 99,999</b>	177		5.44
<b>100,000 to 499,999</b>	176		5.43
<b>500,000 to 1 million</b>	226		5.46
<b>1 million and more</b>	267	3.64	
<b>Sig.</b>		1.000	.815

*Cross Tabulations:*

Through the use of a chi-square analysis, I was able to determine that there was a statistically significant relationship between types of TV shows and age. Furthermore, I was able to conclude Nick Thomas would benefit from advertising the Super Cycle 1-seat Hybrid model and the Runaround Sport 2-seat Hybrid on science fiction TV shows. I was able to draw this conclusion based off of table 17.3A and 17.3B. 17.3A and B show that individuals between the ages of 18 and 24 are more interested in those particular models. I was able to use that information through cross tabulation to decipher that the largest percentage of individuals between the ages of 18 and 24 watched science fiction shows.

To target individuals who are interested in the Runaround with Luggage 2-seat Hybrid, ZEN Motors should promote the model on Sports channels. The Economy 4-seat Hybrid would benefit from promotion through movie or comedy channels, while the Standard 4-seat Hybrid would benefit from advertising through comedy, movie, and

drama television show channels. Since the following relationships were determined to be statistically significant, this relationship will also hold for the entire population.

A cross tabulation between newspaper/radio advertising and the level of education of respondents can be found in tables 18.2 and 18.3. The chi-square analysis for each cross tabulation shows that the variables are indeed statistically significant. In other words, they are variables that will likely provide great input for Nick and ZEN Motors. There is a direct relationship between newspaper/radio and the level of the individual's education with the exception of the individuals with a post-undergraduate degree. Respondents with post-undergraduate degrees express relatively similar interests in different radio stations and the newspaper sections that interest them.

With the exception of respondent's that obtained a post-undergraduate degree, there is one or two newspaper sections per education level that displays considerably more interest than the others. The same holds true for radio genres. For example, for individuals that did not complete high school, there are a significantly higher percentage of them that prefer the entertainment section of the newspaper. The same individuals who did not complete high school also demonstrated more interest in the Super Cycle 1-seat Hybrid model. Therefore, ZEN Motors would benefit from the promotion of the Super Cycle 1-seat Hybrid in the entertainment section of newspapers.

Table 18.4 is a cross tabulation between favorite magazine types and income levels. The results of the chi-square analysis again showed that the two variables were statistically significant. This is clearly evident for the Super Cycle 1-seat Hybrid, the Runaround Sport 2-seat Hybrid, and the Runaround with Luggage 2-seat Hybrid. There is a significant difference as to which magazine an individual prefers based on their

income level. This holds true until the individuals reached an income of \$75,000 or higher. At this point, there was no specific magazine type that stood out over the others. Consequently, this information would not be very useful for Nick.

*Table 18.1: Age and TV Show Type Cross Tabulation:*

<b>Favorite TV show type</b>	<b>Between 18 and 24</b>	<b>Between 25 and 34</b>	<b>Between 35 and 49</b>	<b>Between 50 and 64</b>	<b>65 and older</b>
<b>Comedy - Count Percentage</b>	14 7.3%	31 16.2%	63 33.0%	49 25.7%	34 17.8%
<b>Drama - Count Percentage</b>	9 5.8%	31 19.9%	49 31.4%	42 26.9%	25 16.0%
<b>Movies - Count Percentage</b>	8 4.1%	32 16.2%	63 32.0%	53 26.9%	41 20.8%
<b>News - Count Percentage</b>	3 3.1%	4 4.1%	20 20.4%	31 31.6%	40 40.8%
<b>Reality - Count Percentage</b>	30 21.3%	21 14.9%	29 20.6%	30 21.3%	31 22.0%
<b>Science-Fiction - Count Percentage</b>	46 41.8%	11 10.0%	17 15.5%	15 13.6%	21 19.1%
<b>Sports - Count Percentage</b>	11 10.3%	44 41.1%	15 14.0%	19 17.8%	18 16.8%



Table 18.2: Newspaper and Education Cross Tabulation

<b>Favorite radio genres</b>	<b>Did not complete high school</b>	<b>High school degree</b>	<b>Some college</b>	<b>College degree</b>	<b>Post-undergrad degree</b>
<b>Classic Pop &amp; Rock – Count Percentage</b>	11 14.1%	21 26.9%	19 24.4%	21 26.9%	6 7.7%
<b>Country – Count Percentage</b>	0 0.0%	34 35.1%	26 26.8%	31 32.0%	6 6.2%
<b>Easy Listening Count Percentage</b>	24 9.6%	74 29.7%	82 32.9%	57 22.9%	12 4.8%
<b>Jazz and Blues Count Percentage</b>	19 10.5%	45 24.9%	18 9.9%	60 33.1%	39 21.5%
<b>Pop &amp; Chart – Count Percentage</b>	46 21.6%	85 39.9%	55 25.8%	23 10.8%	4 1.9%
<b>Talk – Count Percentage</b>	94 51.6%	39 21.4%	14 7.7%	30 16.5%	5 2.7%

Table 18.3: Radio and Education Cross Tabulation

<b>Favorite local newspaper section</b>	<b>Did not complete high school</b>	<b>High school degree</b>	<b>Some college</b>	<b>College degree</b>	<b>Post-undergrad degree</b>
<b>Editorial - Count Percentage</b>	11 14.9%	13 17.6%	22 29.7%	21 28.4%	7 9.5%
<b>Business - Count Percentage</b>	29 15.2%	78 40.8%	51 26.7%	27 14.1%	6 3.1%
<b>Local News Count Percentage</b>	59 25.8%	61 26.6%	35 15.3%	54 23.6%	20 8.7%
<b>National News - Count Percentage</b>	37 19.4%	46 24.1%	37 19.4%	46 24.1%	25 13.1%
<b>Sports - Count Percentage</b>	43 23.2%	64 34.6%	33 17.8%	33 17.8%	12 6.5%
<b>Entertainment - Count Percentage</b>	15 11.5%	36 27.7%	36 27.7%	41 31.5%	2 1.5%

Table 18.4 – Magazine and Income Level Crosstab

<b>Favorite local magazine type</b>	<b>Under \$25,000</b>	<b>Between \$25,000 and \$49,999</b>	<b>Between \$50,000 and \$74,999</b>	<b>Between \$75,000 and \$124,999</b>	<b>\$125,000 and higher</b>
<b>Business and Money – Count Percentage</b>	7 7.1%	14 14.3%	10 10.2%	36 36.7%	31 31.6%
<b>Music &amp; Entertainment – Count Percentage</b>	108 38.4%	125 44.5%	33 11.7%	11 3.9%	4 1.4%
<b>Family and Parenting – Count Percentage</b>	27 14.8%	60 32.8%	65 35.5%	28 15.3%	3 1.6%
<b>Sports &amp; Outdoors – Count Percentage</b>	30 30.45%	36 41.4%	13 14.9%	7 8.0%	1 1.1%
<b>Home &amp; Garden – Count Percentage</b>	11 12.4%	24 27.0%	33 37.1%	18 20.2%	3 3.4%
<b>Cooking: Food &amp; Wine – Count Percentage</b>	18 20.7%	23 26.4%	13 14.9%	17 19.5%	16 18.4%
<b>Trucks – Cars &amp; Motorcycles – Count Percentage</b>	41 41.8%	32 32.7%	11 11.2%	11 11.2%	3 3.1%
<b>News – Politics &amp; Current Events – Count Percentage</b>	14 18.2%	29 37.7%	16 20.8%	9 11.7%	9 11.7%

*Correlations:*

Table 18.5 demonstrates the correlation levels between the five potential hybrid models and the consumer life styles. Each hybrid model has a positively moderate to strong relationship with a particular lifestyle. For example, there is a moderately strong relationship between the Runabout Sport 2-seat Hybrid and individuals who follow an innovative lifestyle. In other words, there is a direct relationship between the two variables, such that those who prefer the Runabout Sport 2-seat Hybrid tend to purchase more innovative vehicles. Although I chose not to include the significance level for each correlation, all correlations recorded a .000 significance level. This is important to note because it proves that the following variables are statistically significant and that we should reject the null hypothesis.

*Table 18.5: Correlation between Hybrid Model and Life Style*

	Lifestyle	Lifestyle	Lifestyle	Lifestyle	Lifestyle	Lifestyle
<b>Preference</b>	Novelist	Innovator	Trendsetter	Forerunner	Mainstreamer	Classic
<b>Super Cycle 1-seat Hybrid</b>	.788	.495	.195	-.315	-.417	-.378
<b>Runabout Sport 2-seat Hybrid</b>	.547	.731	.218	-.331	-.403	-.577
<b>Runabout with Luggage 2-seat Hybrid</b>	.119	.140	.719	-.228	-.195	-.070
<b>Economy 4-seat Hybrid</b>	-.352	-.306	-.179	.731	.336	.227
<b>Standard 4-seat Hybrid</b>	-.424	-.372	-.173	.346	.746	.280

*\*Note: This table follows a 95% confidence interval. The significance levels can be seen under chapter 18 (correlations table) in the appendix.*

*Segmentation Analysis*

Tables 19.1 through 19.5 provide a list of the statistically significant variables, using a 95% confidence interval, based on the preferred hybrid model. There are several variables that were statistically significant for each model, while there were also a few variables that were unique depending on the hybrid. “Gasoline emissions contribute to global warming” was one such variable that remained statistically significant for each of the five hybrid models.

The original output from the SPSS software was lengthy, and therefore, I “trimmed” down the number of independent variables. Any variable with a significance level of .05 or less was kept and incorporated into the tables found below. If the variable had a significance level higher than .05, it was “trimmed” out. A model summary was also produced for each test that was ran through the software.

A model summary for each test can be found in the appendix. The model summaries indicate the strength of the relationship between variables. The larger the R square value, the more accurate the line of regression is. While there is definitely a correlation between the dependent variable and the independent variables provided below, a lot of them have a relatively weak correlation. Regardless that they may have a weak correlation, the variables below are reliable predictors of an individual’s intention to buy a specific model.

*Table 19.1 - Preference: Super Cycle one-seat hybrid*

Constant	B	Std. Error	Beta	t	Sig.
<b>We need to do something to slow global warming.</b>	-.069	.033	-.076	-2.098	.036
<b>Gasoline emissions contribute to global warming.</b>	-.132	.032	-.172	-4.106	.000
<b>We should be looking for gasoline substitutes.</b>	.070	.028	.087	2.522	.011
<b>Size of home town or city</b>	.001	.000	.341	16.926	.000
<b>Gender</b>	-.368	.070	-.106	-5.243	.000
<b>Marital status</b>	-.679	.095	-.195	-7.153	.000
<b>Number of people in household</b>	-.431	.036	-.342	-11.939	.000
<b>Age</b>	-.034	.002	-.320	-14.141	.000
<b>Level of education</b>	-.139	.013	-.217	-10.465	.000
<b>Income level</b>	-.013	.001	-.280	-13.208	.000

*Table 19.2 – Preference: Runabout Sport two-seat hybrid*

Constant	B	Std. Error	Beta	t	Sig.
<b>Gasoline emissions contribute to global warming.</b>	-.169	.031	-.225	-5.380	.000
<b>Size of home town or city</b>	.001	.000	.381	18.037	.000
<b>Marital status</b>	.271	.098	.079	2.777	.006
<b>Number of people in household</b>	-.606	.037	-.489	-16.276	.000
<b>Age</b>	-.034	.002	-.325	-13.711	.000
<b>Level of education</b>	-.134	.014	-.213	-9.810	.000
<b>Income level</b>	-.015	.001	-.314	-14.113	.000

Table 19.3 – Preference: Runabout with Luggage two-seat hybrid

Constant	B	Std. Error	Beta	t	Sig.
<b>Gasoline emissions contribute to global warming.</b>	-.169	.031	-.225	-5.380	.000
<b>Hybrid autos that use alternative fuels will reduce fuel emissions.</b>	-.079	.033	-.087	-2.426	.015
<b>Size of home town or city</b>	.002	.000	.496	19.897	.000
<b>Marital status</b>	1.071	.126	.287	8.523	.000
<b>Number of people in household</b>	-.199	.048	-.147	-4.151	.000
<b>Age</b>	-.023	.003	-.208	-7.440	.000
<b>Level of education</b>	.168	.018	.245	9.554	.000
<b>Income level</b>	-.012	.001	-.231	-8.807	.000

Table 19.4 – Preference: Economy four-seat hybrid

Constant	B	Std. Error	Beta	t	Sig.
<b>Global warming is a real threat.</b>	-.124	.046	-.123	-2.663	.008
<b>Gasoline emissions contribute to global warming.</b>	.199	.033	.246	6.093	.000
<b>Hybrid autos that use alternative fuels will keep gas prices down.</b>	.159	.033	.187	4.787	.000
<b>Hybrid autos that use alternative fuels will slow down global warming.</b>	.080	.029	.093	2.784	.005
<b>Size of home town or city</b>	-.001	.000	-.208	-9.751	.000
<b>Age</b>	.044	.003	.394	16.463	.000
<b>Level of education</b>	.249	.015	.368	16.793	.000
<b>Income level</b>	.018	.001	.349	15.510	.000

*Table 19.5 – Preference: Standard four-seat hybrid*

Constant	B	Std. Error	Beta	t	Sig.
<b>Gasoline emissions contribute to global warming.</b>	.149	.030	.209	5.002	.000
<b>Hybrid autos that use alternative fuels will keep gas prices down.</b>	.067	.030	.089	2.209	.027
<b>Size of home town or city</b>	-.001	.000	-.405	-17.457	.000
<b>Gender</b>	.236	.075	.073	3.127	.002
<b>Number of people in household</b>	.516	.039	.438	13.288	.000
<b>Age</b>	.030	.003	.304	11.689	.000
<b>Level of education</b>	.185	.014	.310	12.994	.000
<b>Income level</b>	.004	.001	.079	3.229	.001

*Discussion:*

Based on the statistical analysis from chapters 13-18, I would agree with Nick's idea to survey 1,000 individuals. Nick could have spent more money by surveying a larger sample, but the sample error is fairly insignificant between a survey with 20,000 individuals and a survey with 1,000 individuals (Table 13.1). In my opinion, Nick did a good job choosing survey participants as far as demographics are concerned. By looking at tables 15.1 to 15.12, you can tell that participants were carefully selected. There is a large amount of diversity within the participant pool, which is a great way to reduce potential survey bias.

The remaining tables from chapter 15 (Table 15.13-15.21) play an important role in the analysis that were prepared using the SPSS software from chapters 16-19. From this output, I was able to immediately recognize that a large majority of survey respondents were greatly concerned with global warming, high gasoline prices, and alternative fuel models. Despite having a survey of only 1,000 respondents, the results



can directly be applied to the 111,617,402 American households with a sample error of only 3.1%.

A 95% confidence interval was used for every table found in this report. As we get into chapters 17, 18, and 19, it is important to keep in mind that a significance level (sometimes labeled sig.) are key to understanding the results from the tests that were ran. If the significance level was greater than .05, then the null hypothesis was rejected but if the significance level was less than .05, the null hypothesis was accepted. The significance levels allowed me to recognize which variables were considered statistically significant. In other words, this helped me pull out the variables that should be measured before ZEN Motors picks a specific model(s) to begin manufacturing.

Of the five preferred hybrid models that Nick Thomas is reviewing, I would likely produce a variety of each. ZEN Motors has the ability to create a specific target market because there are so many statistically significant variables for each of the five models. With that in mind, ZEN still has a few problems they must consider. One major concern would be the thought of how many to produce of each model in the beginning. Now that they have pinpointed the preferences of each target market, it will be hard to judge how many to manufacturer. Despite not knowing how many of each model will be desired, ZEN Motors has already completed the hardest part in the research process.

Another issue that Nick will likely run into is the fact that he still has no control over gasoline prices or global warming. Even though Nick has completed all this research, there are still variables that Nick cannot measure accurately. Although his results prove that most Americans believe that gasoline emissions contribute to global warming, his survey results will not be able to forecast a potential drop in the prices of

gasoline. Gas may be \$4 a gallon today, but then again, it may also be \$2.89 a year from now. Regardless of whether or not Americans believe that gasoline emissions are behind global warming, it is highly unlikely that Americans will desire a new hybrid vehicle with decreasing gasoline prices.

Throughout this entire process, I would argue that Nick used both exploratory and descriptive research. Descriptive research studies are a great way to discover the who, what, where, when, and how information. Exploratory research, on the other hand, is a great way to gain background information on new ideas or concepts. Even though Nick utilized both research methods in an attempt to gain as much information as possible for ZEN Motors, both methods come with limitations.

While the survey was a great way for Nick to generalize a small sample to a larger population, the survey allowed for little flexibility. Respondents do not have the ability to ask questions and surveyors must stick with questions that allow for simpler answers (ex. Yes or No, A-D, etc.). Nick also has little control with the administration of they surveys. Respondents could have been rushed or they could be filled with inaccurate responses. Nick had no way of knowing the accuracy of his results without standing over each individual respondent, which is too tedious.

Another concern that Nick should keep in mind is the validity and reliability of his results. He could have reduced the chances for validity errors if he had more time to or money to expend on the process. Focus groups would have been a great way to cross check data and to really gain a better understanding about consumer attitudes and opinions. Despite the limitations of Nick's research, I truly believe that he received helpful information that will benefit ZEN Motors.

*Recommendations:*

If I were a manager with Nick at Advanced Automobile Concepts, I would recommend that ZEN Motors produce a variety of the five hybrid models that were discussed in the last few chapters of the case project. Through the statistical analysis that I ran with SPSS, there seems to be enough individuals that are interested in each of the models. A large majority of respondents displayed a substantial concern towards global warming, high gasoline prices, and alternative fuel vehicles.

While there is still a chance that gasoline prices will fall in the next few years, statistics have proven this to be a highly unlikely possibility. Hybrid vehicles are a great solution when dealing with the threat of global warming combined with high gas prices. Based on a 95% confidence interval, I discovered that there was anywhere between 23.80% and 26.44% chance that an individual would purchase a hybrid automobile within the next three years. In my opinion, these are good odds for ZEN Motors, who already has the trust of many households across America.

Below is a complete description of the recommended target market for each individual hybrid model that I would focus on if I were a manager with Nick at ZEN Motors:

*Super Cycle 1-seat Hybrid:*

- Age: 18-24 years old
- Income: \$25,000 annually
- Marital Status: Unmarried
- Education: High school degree
- Hometown size: > 1 million people
- Media Advertising: Science-fiction TV shows, Pop radio genres, Business newspaper sections, Music and entertainment magazines
- Novelist lifestyle

*Runabout Sport 2-seat Hybrid:*

- Age: 18-24 years old
- Income: \$25,000 annually
- Marital Status: Unmarried
- Education: High school degree
- Hometown size: > 1 million people
- Media Advertising: Science-fiction TV shows, Pop radio genres, Business newspaper sections, Music and entertainment magazines
- Innovator lifestyle

*Runabout with Luggage 2-seat Hybrid:*

- Age: 25-34 years old
- Income: \$25,000-\$74,999 annually
- Marital Status: Married
- Education: College degree
- Hometown size: > 1 million people
- Media Advertising: Sports TV shows, Jazz and Blues radio genres, local news in the newspapers, Music and entertainment/Family and parenting magazines
- Trendsetter lifestyle

*Economy 4-seat Hybrid:*

- Age: 50-64 years old
- Income: \$75,000-\$124,999 annually
- Marital Status: Married
- Education: College degree
- Hometown size: 500,000-1 million people
- Media Advertising: Movie channels on TV, Jazz and Blues radio genres, local news in the newspapers, Business and money magazines
- Forerunner lifestyle

*Standard 4-seat Hybrid:*

- Age: 35-49 years old
- Income: \$125,000 and higher
- Marital Status: Married
- Education: College degree
- Hometown size: 500,000-1 million people
- Media Advertising: Comedy and movie TV show types, Jazz and Blues radio genres, local news in the newspapers, Business and money magazine types
- Mainstreamer lifestyle

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## Appendix

### Chapter 15:

#### Statistical Output for Tables 15.1-15.9:

	Size of home town or city	Gender	Marital Status	Number of people in household	Age
<b>N Valid</b>	1000	1000	1000	1000	1000
<b>N Missing</b>	0	0	0	0	0
<b>Mean</b>	633.30	.50	.51	2.21	46.84
<b>Median</b>	300.00	.00	1.00	2.00	42.00
<b>Mode</b>	1500	0	1	1	42

	Level of education	Job category	Income level	Dwelling type
<b>N Valid</b>	1000	1000	1000	1000
<b>Missing</b>	0	0	0	0
<b>Mean</b>	13.17	3.57	54.308	1.87
<b>Median</b>	14.00	2.00	37.500	2.00
<b>Mode</b>	12	2	37.5	1

*Table 15.1: Size of home town or city*

	Frequency	Percent	Valid Percent	Cumulative Percent
<b>Under 10,000</b>	154	15.4	15.4	15.4
<b>10,000 to 99,999</b>	177	17.7	17.7	33.1
<b>100,000 to 499,999</b>	176	17.6	17.6	50.7
<b>500,000 to 1 million</b>	226	22.6	22.6	73.3
<b>1 million and more</b>	267	26.7	26.7	100.0
<b>Total</b>	1000	100.0	100.0	

*Table 15.2: Gender*

	Frequency	Percent	Valid Percent	Cumulative Percent
<b>Male</b>	505	50.5	50.5	50.5
<b>Female</b>	495	49.5	49.5	100.0
<b>Total</b>	1000	100.0	100.0	

*Table 15.3: Marital Status*

	Frequency	Percent	Valid Percent	Cumulative Percent
<b>Unmarried</b>	487	48.7	48.7	48.7
<b>Married</b>	513	51.3	51.3	100.0
<b>Total</b>	1000	100.0	100.0	

*Table 15.4: Number of people in household*

	Frequency	Percent	Valid Percent	Cumulative Percent
<b>1</b>	395	39.5	39.5	39.5
<b>2</b>	307	30.7	30.7	70.2
<b>3</b>	109	10.9	10.9	81.1
<b>4</b>	104	10.4	10.4	91.5
<b>5</b>	64	6.4	6.4	97.9
<b>6</b>	13	1.3	1.3	99.2
<b>7</b>	5	.5	.5	99.7
<b>8</b>	2	.2	.2	99.9
<b>9</b>	1	.1	.1	100.0
<b>Total</b>	1000	100.0	100.0	

*Table 15.5: Age category*

	Frequency	Percent	Valid Percent	Cumulative Percent
<b>Between 18 and 24</b>	121	12.1	12.1	12.1
<b>Between 25 and 34</b>	174	17.4	17.4	29.5
<b>Between 35 and 49</b>	256	25.6	25.6	55.1
<b>Between 50 and 64</b>	239	23.9	23.9	79.0
<b>65 and older</b>	210	21.0	21.0	100.0
<b>Total</b>	1000	100.0	100.0	

*Table 15.6: Level of education*

	Frequency	Percent	Valid Percent	Cumulative Percent
<b>Did not complete high school</b>	194	19.4	19.4	19.4
<b>High school degree</b>	298	29.8	29.8	49.2
<b>Some college</b>	214	21.4	21.4	70.6
<b>College degree</b>	222	22.2	22.2	92.8
<b>Post-undergraduate degree</b>	72	7.2	7.2	100.0
<b>Total</b>	1000	100.0	100.0	

*Table 15.7: Job category*

	Frequency	Percent	Valid Percent	Cumulative Percent
<b>Managerial and Professional</b>	246	24.6	24.6	24.6
<b>Sales and Office</b>	285	28.5	28.5	53.1
<b>Service</b>	120	12.0	12.0	65.1
<b>Agricultural and Natural Resources</b>	29	2.9	2.9	68.0
<b>Precision Production, Craft, Repair</b>	75	7.5	7.5	75.5
<b>Operation, Fabrication, General Labor</b>	102	10.2	10.2	85.7
<b>Retired</b>	143	14.3	14.3	100.0
<b>Total</b>	1000	100.0	100.0	



*Table 15.8: Income category*

	Frequency	Percent	Valid Percent	Cumulative Percent
<b>Under \$25,000</b>	256	25.6	25.6	25.6
<b>Between \$25,000 and \$49,999</b>	343	34.3	34.3	59.9
<b>Between \$50,000 and \$74,999</b>	194	19.4	19.4	79.3
<b>Between \$75,000 and \$124,999</b>	137	13.7	13.7	93.0
<b>\$125,000 and higher</b>	70	7.0	7.0	100.0
<b>Total</b>	1000	100.0	100.0	

*Table 15.9: Dwelling type*

	Frequency	Percent	Valid Percent	Cumulative Percent
<b>Single-family</b>	452	45.2	45.2	45.2
<b>Multiple-family</b>	296	29.6	29.6	74.8
<b>Condominium/Townhouse</b>	185	18.5	18.5	93.3
<b>Mobile Home</b>	67	6.7	6.7	100.0
<b>Total</b>	1000	100.0	100.0	

*Statistical Output for Tables 15.10-15.12:*

	Primary vehicle price type	Primary vehicle type	Type of commuting
<b>N Valid</b>	1000	1000	1000
<b>N Missing</b>	0	0	0
<b>Median</b>	1.00	1.00	1.00
<b>Mode</b>	1	1	1

*Table 15.10: Primary vehicle price type*

	Frequency	Percent	Valid Percent	Cumulative Percent
<b>No vehicle</b>	100	10.0	10.0	10.0
<b>Economy</b>	455	45.5	45.5	55.5
<b>Standard</b>	271	27.1	27.1	82.6
<b>Luxury</b>	174	17.4	17.4	100.0
<b>Total</b>	1000	100.0	100.0	

*Table 15.11: Primary vehicle type*

	Frequency	Percent	Valid Percent	Cumulative Percent
<b>No vehicle</b>	100	10.0	10.0	10.0
<b>Car</b>	432	43.2	43.2	53.2
<b>Pick-Up Truck</b>	210	21.0	21.0	74.2
<b>SUV, Van</b>	258	25.8	25.8	100.0
<b>Total</b>	1000	100.0	100.0	

*Table 15.12: Type of commuting*

	Frequency	Percent	Valid Percent	Cumulative Percent
<b>Single occupancy</b>	588	58.8	58.8	58.8
<b>Multiple occupancy</b>	62	6.2	6.2	65.0
<b>Public transportation</b>	188	18.8	18.8	83.8
<b>Non-motorized</b>	125	12.5	12.5	96.3
<b>Telecommute</b>	37	3.7	3.7	100.0
<b>Total</b>	1000	100.0	100.0	

*Statistical output for Tables 15.13-15.18:*

	I am worried about global warming.	Global warming is a real threat.	We need to do something to slow global warming.
<b>N Valid</b>	1000	1000	1000
<b>Missing</b>	0	0	0
<b>Median</b>	7.00	7.00	6.00
<b>Mode</b>	7	7	7

	Gasoline emissions contribute to global warming.	Americans use too much gasoline.	We should be looking for gasoline substitutes.
<b>N Valid</b>	1000	1000	1000
<b>Missing</b>	0	0	0
<b>Median</b>	6.00	5.00	6.00
<b>Mode</b>	7	7	7

*Table 15.13: I am worried about global warming.*

	Frequency	Percent	Valid Percent	Cumulative Percent
<b>Very strongly disagree</b>	15	1.5	1.5	1.5
<b>Strongly disagree</b>	25	2.5	2.5	4.0
<b>Disagree</b>	38	3.8	3.8	7.8
<b>Neither disagree nor agree</b>	76	7.6	7.6	15.4
<b>Agree</b>	88	8.8	8.89	24.2
<b>Strongly agree</b>	130	13.0	13.0	37.2
<b>Very strongly agree</b>	628	62.8	62.8	100.0
<b>Total</b>	1000	100.0	100.0	

*Table 15.14: Global warming is a real threat.*

	Frequency	Percent	Valid Percent	Cumulative Percent
<b>Very strongly disagree</b>	50	5.0	5.0	5.0
<b>Strongly disagree</b>	42	4.2	4.2	9.2
<b>Disagree</b>	65	6.5	6.5	15.7
<b>Neither disagree nor agree</b>	95	9.5	9.5	25.2
<b>Agree</b>	97	9.7	9.7	34.9
<b>Strongly agree</b>	127	12.7	12.7	47.6
<b>Very strongly agree</b>	524	52.4	52.4	100.0
<b>Total</b>	1000	100.0	100.0	

*Table 15.15: We need to do something to slow global warming.*

	Frequency	Percent	Valid Percent	Cumulative Percent
<b>Very strongly disagree</b>	57	5.7	5.7	5.7
<b>Strongly disagree</b>	71	7.1	7.1	12.8
<b>Disagree</b>	52	5.2	5.2	18.0
<b>Neither disagree nor agree</b>	132	13.2	13.2	31.2
<b>Agree</b>	113	11.3	11.3	42.5
<b>Strongly agree</b>	147	14.7	14.7	57.2
<b>Very strongly agree</b>	428	42.8	42.8	100.0
<b>Total</b>	1000	100.0	100.0	

*Table 15.16: Gasoline emissions contribute to global warming.*

	Frequency	Percent	Valid Percent	Cumulative Percent
<b>Very strongly disagree</b>	140	14.0	14.0	14.0
<b>Strongly disagree</b>	97	9.7	9.7	23.7
<b>Disagree</b>	59	5.9	5.9	29.6
<b>Neither disagree nor agree</b>	127	12.7	12.7	42.3
<b>Agree</b>	75	7.5	7.5	49.8
<b>Strongly agree</b>	91	9.1	9.1	58.9
<b>Very strongly agree</b>	411	41.1	41.1	100.0
<b>Total</b>	1000	100.0	100.0	

*Table 15.17: Americans use too much gasoline.*

	Frequency	Percent	Valid Percent	Cumulative Percent
<b>Very strongly disagree</b>	69	6.9	6.9	6.9
<b>Strongly disagree</b>	98	9.8	9.8	16.7
<b>Disagree</b>	80	8.0	8.0	24.7
<b>Neither disagree nor agree</b>	144	14.4	14.4	39.1
<b>Agree</b>	112	11.2	11.2	50.3
<b>Strongly agree</b>	94	9.4	9.4	59.7
<b>Very strongly agree</b>	403	40.3	40.3	100.0
<b>Total</b>	1000	100.0	100.0	

Table 15.18: We should be looking for gasoline substitutes.

	Frequency	Percent	Valid Percent	Cumulative Percent
<b>Very strongly disagree</b>	113	11.3	11.3	11.3
<b>Strongly disagree</b>	73	7.3	7.3	18.6
<b>Disagree</b>	71	7.1	7.1	25.7
<b>Neither disagree nor agree</b>	90	9.0	9.0	34.7
<b>Agree</b>	110	11.0	11.0	45.7
<b>Strongly agree</b>	117	11.7	11.7	57.4
<b>Very strongly agree</b>	426	42.6	42.6	100.0
<b>Total</b>	1000	100.0	100.0	

Table 15.19: Frequencies

	I am worried about global warming.	Global warming is a real threat.	We need to do something to slow global warming.
<b>N Valid</b>	1000	1000	1000
<b>Missing</b>	0	0	0
<b>Median</b>	7.00	7.00	6.00
<b>Mode</b>	7	7	7

	Gasoline emissions contribute to global warming.	Americans use too much gasoline.	We should be looking for gasoline substitutes.
<b>N Valid</b>	1000	1000	1000
<b>Missing</b>	0	0	0
<b>Median</b>	6.00	5.00	6.00
<b>Mode</b>	7	7	7

*Frequency Tables**I am worried about global warming.*

	Frequency	Percent	Valid Percent	Cumulative Percent
<b>Very strongly disagree</b>	15	1.5	1.5	1.5
<b>Strongly disagree</b>	25	2.5	2.5	4.0
<b>Disagree</b>	38	3.8	3.8	7.8
<b>Neither disagree nor agree</b>	76	7.6	7.6	15.4
<b>Agree</b>	88	8.8	8.89	24.2
<b>Strongly agree</b>	130	13.0	13.0	37.2
<b>Very strongly agree</b>	628	62.8	62.8	100.0
<b>Total</b>	1000	100.0	100.0	

*Global warming is a real threat.*

	Frequency	Percent	Valid Percent	Cumulative Percent
<b>Very strongly disagree</b>	50	5.0	5.0	5.0
<b>Strongly disagree</b>	42	4.2	4.2	9.2
<b>Disagree</b>	65	6.5	6.5	15.7
<b>Neither disagree nor agree</b>	95	9.5	9.5	25.2
<b>Agree</b>	97	9.7	9.7	34.9
<b>Strongly agree</b>	127	12.7	12.7	47.6
<b>Very strongly agree</b>	524	52.4	52.4	100.0
<b>Total</b>	1000	100.0	100.0	

*We need to do something to slow global warming.*

	Frequency	Percent	Valid Percent	Cumulative Percent
<b>Very strongly disagree</b>	57	5.7	5.7	5.7
<b>Strongly disagree</b>	71	7.1	7.1	12.8
<b>Disagree</b>	52	5.2	5.2	18.0
<b>Neither disagree nor agree</b>	132	13.2	13.2	31.2
<b>Agree</b>	113	11.3	11.3	42.5
<b>Strongly agree</b>	147	14.7	14.7	57.2
<b>Very strongly agree</b>	428	42.8	42.8	100.0
<b>Total</b>	1000	100.0	100.0	

*Gasoline emissions contribute to global warming.*

	Frequency	Percent	Valid Percent	Cumulative Percent
<b>Very strongly disagree</b>	140	14.0	14.0	14.0
<b>Strongly disagree</b>	97	9.7	9.7	23.7
<b>Disagree</b>	59	5.9	5.9	29.6
<b>Neither disagree nor agree</b>	127	12.7	12.7	42.3
<b>Agree</b>	75	7.5	7.5	49.8
<b>Strongly agree</b>	91	9.1	9.1	58.9
<b>Very strongly agree</b>	411	41.1	41.1	100.0
<b>Total</b>	1000	100.0	100.0	



*Americans use too much gasoline.*

	Frequency	Percent	Valid Percent	Cumulative Percent
<b>Very strongly disagree</b>	69	6.9	6.9	6.9
<b>Strongly disagree</b>	98	9.8	9.8	16.7
<b>Disagree</b>	80	8.0	8.0	24.7
<b>Neither disagree nor agree</b>	144	14.4	14.4	39.1
<b>Agree</b>	112	11.2	11.2	50.3
<b>Strongly agree</b>	94	9.4	9.4	59.7
<b>Very strongly agree</b>	403	40.3	40.3	100.0
<b>Total</b>	1000	100.0	100.0	

*We should be looking for gasoline substitutes.*

	Frequency	Percent	Valid Percent	Cumulative Percent
<b>Very strongly disagree</b>	113	11.3	11.3	11.3
<b>Strongly disagree</b>	73	7.3	7.3	18.6
<b>Disagree</b>	71	7.1	7.1	25.7
<b>Neither disagree nor agree</b>	90	9.0	9.0	34.7
<b>Agree</b>	110	11.0	11.0	45.7
<b>Strongly agree</b>	117	11.7	11.7	57.4
<b>Very strongly agree</b>	426	42.6	42.6	100.0
<b>Total</b>	1000	100.0	100.0	

*Descriptive Statistics: Preference for various types of automobile hybrid models*

	N	Minimum	Maximum	Mean	Standard Deviation
<b>Preference: Super Cycle 1 seat hybrid</b>	1000	1	7	3.30	1.744
<b>Preference: Runabout Sport 2 seat hybrid</b>	1000	1	7	4.27	1.712
<b>Preference: Runabout with Luggage 2 seat hybrid</b>	1000	1	7	3.79	1.866
<b>Preference: Economy 4 seat hybrid</b>	1000	1	7	3.49	1.839
<b>Preference: Standard 4 seat hybrid</b>	1000	1	7	4.96	1.626
<b>Valid N (listwise)</b>	1000				

Table 15.20: Attitudes towards new automobile types

	N	Minimum	Maximum	Mean	Standard Deviation
<b>Very small autos with very high mpg's will reduce fuel emissions.</b>	1000	1	7	4.83	2.079
<b>Very small autos with very high mpg's will keep gas prices stable.</b>	1000	1	7	4.50	2.343
<b>Very small autos with very high mpg's will slow down global warming.</b>	1000	1	7	3.46	2.197
<b>Small autos with high mpg's will reduce fuel emissions.</b>	1000	1	7	3.95	2.247
<b>Small autos with high mpg's will keep gas prices stable.</b>	1000	1	7	4.91	2.523
<b>Small autos with high mpg's will slow down global warming.</b>	1000	1	7	4.47	2.296
<b>Hybrid autos that use alternative fuels will reduce fuel emissions.</b>	1000	1	7	5.10	2.052
<b>Hybrid autos that use alternative fuels will keep gas prices down.</b>	1000	1	7	5.77	2.157
<b>Hybrid autos that use alternative fuels will slow down global warming.</b>	1000	1	7	4.06	2.133
<b>Valid N (listwise)</b>	1000				

*Table 15.21: Probabilities of buying hybrid automobile types within 3 years*

	N	Minimum	Maximum	Mean	Standard Deviation
<b>Probability of buying a very small (1 seat) hybrid auto within 3 years</b>	1000	0	100	13.78	23.088
<b>Probability of buying a small (2 seat) hybrid auto within 3 years</b>	1000	0	90	20.59	12.285
<b>Probability of buying a standard size hybrid auto within 3 years</b>	1000	0	100	30.12	21.205
<b>Probability of buying a standard size synthetic model auto within 3 years</b>	1000	0	100	40.17	21.465
<b>Probability of buying a standard size electric auto within 3 years</b>	1000	0	100	34.64	22.090
<b>Valid N (listwise)</b>	1000				

*Chapter 16:**Table 16.1: Automobile Ownership**Primary vehicle price type*

	Frequency	Percent	Valid Percent	Cumulative Percent
<b>No vehicle</b>	100	10.0	10.0	10.0
<b>Economy</b>	455	45.5	45.5	55.5
<b>Standard</b>	271	27.1	27.1	82.6
<b>Luxury</b>	174	17.4	17.4	100.0
<b>Total</b>	1000	100.0	100.0	

*Primary vehicle type*

	Frequency	Percent	Valid Percent	Cumulative Percent
<b>No vehicle</b>	100	10.0	10.0	10.0
<b>Car</b>	432	43.2	43.2	53.2
<b>Pick-Up Truck</b>	210	21.0	21.0	74.2
<b>SUV, Van</b>	258	25.8	25.8	100.0
<b>Total</b>	1000	100.0	100.0	

*\*Note: Table 16.1 in unit 6 is a combination of the two tables found above because it asks specifically for standard vehicle, luxury vehicle, and SUV or van.*

Table 16.2: Attitudes towards new automobile types

	N	Minimum	Maximum	Mean	Standard Deviation
<b>Very small autos with very high mpg's will reduce fuel emissions.</b>	1000	1	7	4.83	2.079
<b>Very small autos with very high mpg's will keep gas prices stable.</b>	1000	1	7	4.50	2.343
<b>Very small autos with very high mpg's will slow down global warming.</b>	1000	1	7	3.46	2.197
<b>Small autos with high mpg's will reduce fuel emissions.</b>	1000	1	7	3.95	2.247
<b>Small autos with high mpg's will keep gas prices stable.</b>	1000	1	7	4.91	2.523
<b>Small autos with high mpg's will slow down global warming.</b>	1000	1	7	4.47	2.296
<b>Hybrid autos that use alternative fuels will reduce fuel emissions.</b>	1000	1	7	5.10	2.052
<b>Hybrid autos that use alternative fuels will keep gas prices down.</b>	1000	1	7	5.77	2.157
<b>Hybrid autos that use alternative fuels will slow down global warming.</b>	1000	1	7	4.06	2.133
<b>Valid N (listwise)</b>	1000				

Table 16.3: One-Sample Statistics (T Test)

	N	Mean	Standard Deviation	Standard Error Mean
<b>Probability of buying a very small (1 seat) hybrid auto within 3 years</b>	1000	13.78	23.088	.730
<b>Probability of buying a small (2 seat) hybrid auto within 3 years</b>	1000	20.59	19.285	.610
<b>Probability of buying a standard size hybrid auto within 3 years</b>	1000	30.12	21.205	.671
<b>Probability of buying a standard size synthetic fuel auto within 3 years</b>	1000	40.17	21.465	.679
<b>Probability of buying a standard size electric auto within 3 years</b>	1000	34.64	22.090	.699

One-Sample Test (T Test)

	t	df	Sig. (2 tailed)	Mean Difference	Lower	Upper
<b>Probability of buying a very small (1 seat) hybrid auto within 3 years</b>	12.026	999	.000	8.780	7.35	10.21
<b>Probability of buying a small (2 seat) hybrid auto within 3 years</b>	25.563	999	.000	15.590	14.39	16.79
<b>Probability of buying a standard size hybrid auto within 3 years</b>	37.462	999	.000	25.120	23.80	26.44
<b>Probability of buying a standard size synthetic fuel auto within 3 years</b>	51.814	999	.000	35.170	33.84	36.50
<b>Probability of buying a standard size electric auto within 3 years</b>	42.431	999	.000	29.640	28.27	31.01

*\*Note: This test was run using a 95% confidence interval with a test value of 5.*

*Chapter 17 Output:**Table 17.1: Group Statistics*

	Gender	N	Mean	Standard Deviation	Standard Error Mean
<b>Preference: Super Cycle 1 seat hybrid</b>	Male	505	3.50	1.697	.076
	Female	495	3.09	1.768	.079
<b>Preference: Runabout Sport 2 seat hybrid</b>	Male	505	4.24	1.710	.076
	Female	495	4.29	1.714	.077
<b>Preference: Runabout with Luggage 2 seat hybrid</b>	Male	505	3.85	1.856	.083
	Female	495	3.72	1.877	.084
<b>Preference: Economy 4 seat hybrid</b>	Male	505	3.54	1.851	.082
	Female	495	3.45	1.827	.082
<b>Preference: Standard 4 seat hybrid</b>	Male	505	4.82	1.582	.070
	Female	495	5.10	1.659	.075



Table 17.1: Independent Samples Test

	F	Sig.	t	df	Sig. (2-tailed)
<b>Preference: Super Cycle 1 seat hybrid</b>	.093	.761	3.742	998	.000
			3.741	994.341	.000
<b>Preference: Runabout Sport 2 seat hybrid</b>	.000	.985	-.455	998	.649
			-.455	997.500	.649
<b>Preference: Runabout with Luggage 2 seat hybrid</b>	.790	.374	1.053	998	.293
			1.053	996.997	.293
<b>Preference: Economy 4 seat hybrid</b>	.649	.421	.757	998	.449
			.758	997.956	.449
<b>Preference: Standard 4 seat hybrid</b>	1.634	.201	-2.724	998	.007
			-2.723	993.539	.007

	Mean Difference	Standard Error Difference	Lower	Upper
<b>Preference: Super Cycle 1 seat hybrid</b>	.410	.110	.195	.625
	.410	.110	.195	.625
<b>Preference: Runabout Sport 2 seat hybrid</b>	-.049	.108	-.262	.163
	-.049	.108	-.262	.163
<b>Preference: Runabout with Luggage 2 seat hybrid</b>	.124	.118	-.107	.356
	.124	.118	-.107	.356
<b>Preference: Economy 4 seat hybrid</b>	.088	.116	-.140	.316
	.088	.116	-.140	.316
<b>Preference: Standard 4 seat hybrid</b>	-.279	.102	-.480	-.078
	-.279	.102	-.480	-.078

Table 17.2: Group Statistics

	Marital Status	N	Mean	Standard Deviation	Standard Error Mean
<b>Preference: Super Cycle 1 seat hybrid</b>	Unmarried	487	4.09	1.721	.078
	Married	513	2.54	1.400	.062
<b>Preference: Runabout Sport 2 seat hybrid</b>	Unmarried	487	4.72	1.642	.074
	Married	513	3.83	1.663	.073
<b>Preference: Runabout with Luggage 2 seat hybrid</b>	Unmarried	487	3.53	1.705	.077
	Married	513	4.03	1.979	.087
<b>Preference: Economy 4 seat hybrid</b>	Unmarried	487	3.43	1.837	.083
	Married	513	3.56	1.841	.081
<b>Preference: Standard 4 seat hybrid</b>	Unmarried	487	4.55	1.672	.076
	Married	513	5.35	1.481	.065

Table 17.2: Independent Samples Test

	F	Sig.	t	df	Sig. (2-tailed)
<b>Preference: Super Cycle 1 seat hybrid</b>	16.574	.000	15.604	998	.000
			15.522	937.283	.000
<b>Preference: Runabout Sport 2 seat hybrid</b>	.119	.730	8.552	998	.000
			8.555	996.440	.000
<b>Preference: Runabout with Luggage 2 seat hybrid</b>	15.025	.000	-4.231	998	.000
			-4.247	988.825	.000
<b>Preference: Economy 4 seat hybrid</b>	.001	.976	-1.069	998	.285
			-1.069	995.521	.285
<b>Preference: Standard 4 seat hybrid</b>	9.312	.002	-8.006	998	.000
			-7.981	969.157	.000

	Mean Difference	Standard Error Difference	Lower	Upper
<b>Preference: Super Cycle 1 seat hybrid</b>	1.544	.099	1.350	1.739
	1.544	.100	1.349	1.740
<b>Preference: Runabout Sport 2 seat hybrid</b>	.894	.105	.689	1.100
	.894	.105	.689	1.100
<b>Preference: Runabout with Luggage 2 seat hybrid</b>	-.495	.117	-.725	-.266
	-.495	.117	-.724	-.267
<b>Preference: Economy 4 seat hybrid</b>	-.124	.116	-.353	.104
	-.124	.116	-.353	.104
<b>Preference: Standard 4 seat hybrid</b>	-.799	.100	-.994	-.603
	-.799	.100	-.995	-.602

Table 17.3: Age Descriptives

Descriptives					
		N	Mean	Std. Deviation	Std. Error
Preference: Super Cycle 1 seat hybrid	Between 18 and 24	121	4.94	1.841	.167
	Between 25 and 34	174	3.33	1.663	.126
	Between 35 and 49	256	3.21	1.635	.102
	Between 50 and 64	239	2.55	1.460	.094
	65 and older	210	3.28	1.547	.107
	Total	1000	3.30	1.744	.055
Preference: Runabout Sport 2 seat hybrid	Between 18 and 24	121	5.73	1.390	.126
	Between 25 and 34	174	4.17	1.642	.124

	Between 35 and 49	256	4.34	1.601	.100
	Between 50 and 64	239	3.42	1.663	.108
	65 and older	210	4.37	1.520	.105
	Total	1000	4.27	1.712	.054
Preference: Runabout with Luggage 2 seat hybrid	Between 18 and 24	121	4.25	1.890	.172
	Between 25 and 34	174	4.67	1.828	.139
	Between 35 and 49	256	3.52	1.621	.101
	Between 50 and 64	239	3.43	1.809	.117
	65 and older	210	3.51	1.955	.135
	Total	1000	3.79	1.866	.059
Preference: Economy 4 seat hybrid	Between 18 and 24	121	1.82	1.057	.096
	Between 25 and 34	174	2.48	1.469	.111
	Between 35 and 49	256	3.55	1.698	.106
	Between 50 and 64	239	4.58	1.768	.114
	65 and older	210	4.00	1.606	.111
	Total	1000	3.50	1.839	.058
Preference: Standard 4 seat hybrid	Between 18 and 24	121	4.16	1.784	.162
	Between 25 and 34	174	4.30	1.752	.133
	Between 35 and 49	256	5.56	1.388	.087
	Between 50 and 64	239	5.34	1.443	.093
	65 and older	210	4.80	1.476	.102
	Total	1000	4.96	1.626	.051

Descriptives					
		95% Confidence Interval for Mean		Minimum	Maximum
		Lower Bound	Upper Bound		
Preference: Super Cycle 1 seat hybrid	Between 18 and 24	4.61	5.27	1	7
	Between 25 and 34	3.08	3.58	1	7
	Between 35 and 49	3.01	3.41	1	7
	Between 50 and 64	2.36	2.73	1	7
	65 and older	3.07	3.49	1	7
	Total	3.19	3.40	1	7
Preference: Runabout Sport 2 seat hybrid	Between 18 and 24	5.48	5.98	2	7
	Between 25 and 34	3.92	4.41	1	7
	Between 35 and 49	4.15	4.54	1	7
	Between 50 and 64	3.21	3.63	1	7
	65 and older	4.16	4.58	1	7
	Total	4.16	4.37	1	7
Preference: Runabout with Luggage 2 seat hybrid	Between 18 and 24	3.91	4.59	1	7
	Between 25 and 34	4.40	4.95	1	7
	Between 35 and 49	3.32	3.72	1	6
	Between 50 and 64	3.20	3.66	1	7
	65 and older	3.25	3.78	1	7
	Total	3.67	3.90	1	7
Preference: Economy 4 seat hybrid	Between 18 and 24	1.63	2.01	1	6
	Between 25	2.26	2.70	1	7

	and 34				
	Between 35 and 49	3.35	3.76	1	7
	Between 50 and 64	4.35	4.80	1	7
	65 and older	3.78	4.21	1	7
	Total	3.38	3.61	1	7
Preference: Standard 4 seat hybrid	Between 18 and 24	3.84	4.48	1	7
	Between 25 and 34	4.04	4.57	1	7
	Between 35 and 49	5.39	5.73	1	7
	Between 50 and 64	5.16	5.53	1	7
	65 and older	4.60	5.00	1	7
	Total	4.86	5.06	1	7

Table 17.3: Age ANOVA

		ANOVA				
		Sum of Squares	df	Mean Square	F	Sig.
Preference: Super Cycle 1 seat hybrid	Between Groups	463.814	4	115.953	44.813	.000
	Within Groups	2574.570	995	2.588		
	Total	3038.384	999			
Preference: Runabout Sport 2 seat hybrid	Between Groups	433.981	4	108.495	43.298	.000
	Within Groups	2493.263	995	2.506		
	Total	2927.244	999			
Preference: Runabout with Luggage 2 seat hybrid	Between Groups	226.344	4	56.586	17.303	.000
	Within Groups	3253.860	995	3.270		
	Total	3480.204	999			
Preference:	Between	851.979	4	212.995	83.90	.000

Economy 4 seat hybrid	Groups				0	
	Within Groups	2525.996	995	2.539		
	Total	3377.975	999			
Preference: Standard 4 seat hybrid	Between Groups	284.940	4	71.235	30.09	.000
	Within Groups	2355.460	995	2.367		
	Total	2640.400	999			

Table 17.3: Age Post Hoc Tests and Homogeneous Subsets

Preference: Super Cycle 1 seat hybrid				
Duncan <sup>a,b</sup>				
Age category	N	Subset for alpha = 0.05		
		1	2	3
Between 50 and 64	239	2.55		
Between 35 and 49	256		3.21	
65 and older	210		3.28	
Between 25 and 34	174		3.33	
Between 18 and 24	121			4.94
Sig.		1.000	.500	1.000
Means for groups in homogeneous subsets are displayed.				
a. Uses Harmonic Mean Sample Size = 186.124.				
b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.				

Preference: Runabout Sport 2 seat hybrid				
Duncan <sup>a,b</sup>				
Age category	N	Subset for alpha = 0.05		
		1	2	3
Between 50 and 64	239	3.42		
Between 25 and 34	174		4.17	
Between 35 and 49	256		4.34	
65 and older	210		4.37	
Between 18 and 24	121			5.73
Sig.		1.000	.242	1.000
Means for groups in homogeneous subsets are displayed.				

- a. Uses Harmonic Mean Sample Size = 186.124.  
 b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

<b>Preference: Runabout with Luggage 2 seat hybrid</b>				
Duncan <sup>a,b</sup>				
Age category	N	Subset for alpha = 0.05		
		1	2	3
Between 50 and 64	239	3.43		
65 and older	210	3.51		
Between 35 and 49	256	3.52		
Between 18 and 24	121		4.25	
Between 25 and 34	174			4.67
Sig.		.660	1.000	1.000
Means for groups in homogeneous subsets are displayed.				
a. Uses Harmonic Mean Sample Size = 186.124.				
b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.				

<b>Preference: Economy 4 seat hybrid</b>						
Duncan <sup>a,b</sup>						
Age category	N	Subset for alpha = 0.05				
		1	2	3	4	5
Between 18 and 24	121	1.82				
Between 25 and 34	174		2.48			
Between 35 and 49	256			3.55		
65 and older	210				4.00	
Between 50 and 64	239					4.58
Sig.		1.000	1.000	1.000	1.000	1.000
Means for groups in homogeneous subsets are displayed.						
a. Uses Harmonic Mean Sample Size = 186.124.						
b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.						



Preference: Standard 4 seat hybrid				
Duncan <sup>a,b</sup>				
Age category	N	Subset for alpha = 0.05		
		1	2	3
Between 18 and 24	121	4.16		
Between 25 and 34	174	4.30		
65 and older	210		4.80	
Between 50 and 64	239			5.34
Between 35 and 49	256			5.56
Sig.		.355	1.000	.177
Means for groups in homogeneous subsets are displayed.				
a. Uses Harmonic Mean Sample Size = 186.124.				
b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.				

Table 17.4: Level of Education Oneway Descriptives

Descriptives					
		N	Mean	Std. Deviation	Std. Error
Preference: Super Cycle 1 seat hybrid	Did not complete high school	194	3.63	1.656	.119
	High school degree	298	3.65	1.777	.103
	Some college	214	3.58	1.779	.122
	College degree	222	2.69	1.500	.101
	Post-undergraduate degree	72	1.93	1.237	.146
	Total	1000	3.30	1.744	.055
Preference: Runabout Sport 2 seat hybrid	Did not complete high school	194	4.73	1.531	.110
	High school degree	298	4.61	1.579	.091
	Some college	214	4.56	1.764	.121
	College degree	222	3.43	1.626	.109
	Post-	72	3.29	1.542	.182

	undergraduate degree				
	Total	1000	4.27	1.712	.054
Preference: Runabout with Luggage 2 seat hybrid	Did not complete high school	194	3.32	1.782	.128
	High school degree	298	3.22	1.895	.110
	Some college	214	4.63	1.589	.109
	College degree	222	4.35	1.707	.115
	Post-undergraduate degree	72	3.15	1.805	.213
	Total	1000	3.79	1.866	.059
Preference: Economy 4 seat hybrid	Did not complete high school	194	2.70	1.497	.107
	High school degree	298	2.66	1.584	.092
	Some college	214	3.62	1.728	.118
	College degree	222	4.83	1.591	.107
	Post-undergraduate degree	72	4.60	1.633	.192
	Total	1000	3.50	1.839	.058
Preference: Standard 4 seat hybrid	Did not complete high school	194	4.08	1.735	.125
	High school degree	298	4.87	1.529	.089
	Some college	214	4.93	1.552	.106
	College degree	222	5.68	1.393	.093
	Post-undergraduate degree	72	5.61	1.338	.158
	Total	1000	4.96	1.626	.051

<b>Descriptives</b>					
		95% Confidence Interval for Mean		Minimum	Maximum
		Lower Bound	Upper Bound		
Preference: Super Cycle 1 seat hybrid	Did not complete high school	3.40	3.87	1	7
	High school degree	3.45	3.85	1	7
	Some college	3.34	3.82	1	7
	College degree	2.50	2.89	1	7
	Post-undergraduate degree	1.64	2.22	1	7
	Total	3.19	3.40	1	7
Preference: Runabout Sport 2 seat hybrid	Did not complete high school	4.51	4.94	1	7
	High school degree	4.43	4.79	1	7
	Some college	4.32	4.79	1	7
	College degree	3.22	3.65	1	7
	Post-undergraduate degree	2.93	3.65	1	7
	Total	4.16	4.37	1	7
Preference: Runabout with Luggage 2 seat hybrid	Did not complete high school	3.07	3.58	1	7
	High school degree	3.00	3.43	1	7
	Some college	4.41	4.84	1	7
	College degree	4.12	4.57	1	7
	Post-undergraduate degree	2.73	3.58	1	7
	Total	3.67	3.90	1	7
Preference: Economy 4 seat hybrid	Did not complete high school	2.49	2.91	1	7
	High school degree	2.48	2.84	1	7

	Some college	3.39	3.85	1	7
	College degree	4.62	5.04	1	7
	Post- undergraduate degree	4.21	4.98	1	7
	Total	3.38	3.61	1	7
Preference: Standard 4 seat hybrid	Did not complete high school	3.84	4.33	1	7
	High school degree	4.69	5.04	1	7
	Some college	4.72	5.13	1	7
	College degree	5.49	5.86	1	7
	Post- undergraduate degree	5.30	5.93	2	7
	Total	4.86	5.06	1	7

Table 17.4: Level of Education ANOVA

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Preference: Super Cycle 1 seat hybrid	Between Groups	291.555	4	72.889	26.4 03	.000
	Within Groups	2746.82 9	995	2.761		
	Total	3038.38 4	999			
Preference: Runabout Sport 2 seat hybrid	Between Groups	317.914	4	79.478	30.3 07	.000
	Within Groups	2609.33 0	995	2.622		
	Total	2927.24 4	999			
Preference: Runabout with Luggage 2 seat hybrid	Between Groups	387.135	4	96.784	31.1 34	.000
	Within Groups	3093.06 9	995	3.109		

	Total	3480.20 4	999			
Preference: Economy 4 seat hybrid	Between Groups	815.391	4	203.848	79.1 50	.000
	Within Groups	2562.58 4	995	2.575		
	Total	3377.97 5	999			
Preference: Standard 4 seat hybrid	Between Groups	296.525	4	74.131	31.4 70	.000
	Within Groups	2343.87 5	995	2.356		
	Total	2640.40 0	999			

Table 17.4: Level of Education Post Hoc and Homogeneous Subsets

Preference: Super Cycle 1 seat hybrid				
Duncan <sup>a,b</sup>				
Level of education	N	Subset for alpha = 0.05		
		1	2	3
Post-undergraduate degree	72	1.93		
College degree	222		2.69	
Some college	214			3.58
Did not complete high school	194			3.63
High school degree	298			3.65
Sig.		1.000	1.000	.751
Means for groups in homogeneous subsets are displayed.				
a. Uses Harmonic Mean Sample Size = 158.345.				
b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.				

Preference: Runabout Sport 2 seat hybrid			
Duncan <sup>a,b</sup>			
Level of education	N	Subset for alpha = 0.05	
		1	2
Post-undergraduate	72	3.29	

degree			
College degree	222	3.43	
Some college	214		4.56
High school degree	298		4.61
Did not complete high school	194		4.73
Sig.		.439	.381
Means for groups in homogeneous subsets are displayed.			
a. Uses Harmonic Mean Sample Size = 158.345.			
b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.			

<b>Preference: Runabout with Luggage 2 seat hybrid</b>			
Duncan <sup>a,b</sup>			
Level of education	N	Subset for alpha = 0.05	
		1	2
Post-undergraduate degree	72	3.15	
High school degree	298	3.22	
Did not complete high school	194	3.32	
College degree	222		4.35
Some college	214		4.63
Sig.		.418	.159
Means for groups in homogeneous subsets are displayed.			
a. Uses Harmonic Mean Sample Size = 158.345.			
b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.			

<b>Preference: Economy 4 seat hybrid</b>				
Duncan <sup>a,b</sup>				
Level of education	N	Subset for alpha = 0.05		
		1	2	3
High school degree	298	2.66		
Did not complete high school	194	2.70		
Some college	214		3.62	
Post-undergraduate	72			4.60

degree				
College degree	222			4.83
Sig.		.825	1.000	.199
Means for groups in homogeneous subsets are displayed.				
a. Uses Harmonic Mean Sample Size = 158.345.				
b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.				

Preference: Standard 4 seat hybrid				
Duncan <sup>a,b</sup>				
Level of education	N	Subset for alpha = 0.05		
		1	2	3
Did not complete high school	194	4.08		
High school degree	298		4.87	
Some college	214		4.93	
Post-undergraduate degree	72			5.61
College degree	222			5.68
Sig.		1.000	.730	.708
Means for groups in homogeneous subsets are displayed.				
a. Uses Harmonic Mean Sample Size = 158.345.				
b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.				

Table 17.5: Income Oneway Descriptives

Descriptives					
		N	Mean	Std. Deviation	Std. Error
Preference: Super Cycle 1 seat hybrid	Under \$25,000	256	4.25	1.712	.107
	Between \$25,000 and \$49,999	343	3.57	1.732	.094
	Between \$50,000 and \$74,999	194	2.57	1.450	.104
	Between \$75,000 and \$124,999	137	2.62	1.301	.111

	\$125,000 and higher	70	1.80	.844	.101
	Total	1000	3.30	1.744	.055
Preference: Runabout Sport 2 seat hybrid	Under \$25,000	256	5.09	1.488	.093
	Between \$25,000 and \$49,999	343	4.67	1.613	.087
	Between \$50,000 and \$74,999	194	3.61	1.534	.110
	Between \$75,000 and \$124,999	137	3.47	1.471	.126
	\$125,000 and higher	70	2.64	1.425	.170
	Total	1000	4.27	1.712	.054
Preference: Runabout with Luggage 2 seat hybrid	Under \$25,000	256	3.07	1.821	.114
	Between \$25,000 and \$49,999	343	4.71	1.497	.081
	Between \$50,000 and \$74,999	194	4.45	1.629	.117
	Between \$75,000 and \$124,999	137	2.61	1.597	.136
	\$125,000 and higher	70	2.34	1.522	.182
	Total	1000	3.79	1.866	.059
Preference: Economy 4 seat hybrid	Under \$25,000	256	2.68	1.576	.099
	Between \$25,000 and \$49,999	343	2.86	1.494	.081
	Between \$50,000 and \$74,999	194	3.64	1.518	.109
	Between \$75,000 and \$124,999	137	5.50	1.530	.131
	\$125,000 and higher	70	5.24	1.449	.173
	Total	1000	3.50	1.839	.058
Preference: Standard 4 seat hybrid	Under \$25,000	256	4.49	1.657	.104
	Between \$25,000 and \$49,999	343	4.87	1.701	.092
	Between \$50,000 and \$74,999	194	5.23	1.511	.108



	Between \$75,000 and \$124,999	137	5.31	1.413	.121
	\$125,000 and higher	70	5.67	1.282	.153
	Total	1000	4.96	1.626	.051

Descriptives					
		95% Confidence Interval for Mean		Minimum	Maximum
		Lower Bound	Upper Bound		
Preference: Super Cycle 1 seat hybrid	Under \$25,000	4.04	4.46	1	7
	Between \$25,000 and \$49,999	3.39	3.76	1	7
	Between \$50,000 and \$74,999	2.36	2.77	1	7
	Between \$75,000 and \$124,999	2.40	2.84	1	7
	\$125,000 and higher	1.60	2.00	1	4
	Total	3.19	3.40	1	7
Preference: Runabout Sport 2 seat hybrid	Under \$25,000	4.91	5.27	1	7
	Between \$25,000 and \$49,999	4.50	4.84	1	7
	Between \$50,000 and \$74,999	3.39	3.83	1	7
	Between \$75,000 and \$124,999	3.23	3.72	1	7
	\$125,000 and higher	2.30	2.98	1	7
	Total	4.16	4.37	1	7
Preference: Runabout with	Under \$25,000	2.84	3.29	1	7
	Between	4.55	4.87	1	7

Luggage 2 seat hybrid	\$25,000 and \$49,999				
	Between \$50,000 and \$74,999	4.22	4.68	1	7
	Between \$75,000 and \$124,999	2.34	2.88	1	6
	\$125,000 and higher	1.98	2.71	1	7
	Total	3.67	3.90	1	7
Preference: Economy 4 seat hybrid	Under \$25,000	2.49	2.88	1	7
	Between \$25,000 and \$49,999	2.70	3.02	1	7
	Between \$50,000 and \$74,999	3.43	3.86	1	7
	Between \$75,000 and \$124,999	5.24	5.75	1	7
	\$125,000 and higher	4.90	5.59	1	7
Total	3.38	3.61	1	7	
Preference: Standard 4 seat hybrid	Under \$25,000	4.29	4.70	1	7
	Between \$25,000 and \$49,999	4.69	5.05	1	7
	Between \$50,000 and \$74,999	5.02	5.45	1	7
	Between \$75,000 and \$124,999	5.08	5.55	1	7
	\$125,000 and higher	5.37	5.98	3	7
Total	4.86	5.06	1	7	

Table 17.5: Income ANOVA

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Preference: Super Cycle 1 seat hybrid	Between Groups	579.942	4	144.986	58.680	.000
	Within Groups	2458.442	995	2.471		
	Total	3038.384	999			
Preference: Runabout Sport 2 seat hybrid	Between Groups	584.079	4	146.020	62.006	.000
	Within Groups	2343.165	995	2.355		
	Total	2927.244	999			
Preference: Runabout with Luggage 2 seat hybrid	Between Groups	849.338	4	212.335	80.305	.000
	Within Groups	2630.866	995	2.644		
	Total	3480.204	999			
Preference: Economy 4 seat hybrid	Between Groups	1073.743	4	268.436	115.914	.000
	Within Groups	2304.232	995	2.316		
	Total	3377.975	999			
Preference: Standard 4 seat hybrid	Between Groups	125.811	4	31.453	12.446	.000
	Within Groups	2514.589	995	2.527		
	Total	2640.400	999			

Table 17.5: Income Post Hoc and Homogenous Subsets

<b>Preference: Super Cycle 1 seat hybrid</b>					
Duncan <sup>a,b</sup>					
Income category	N	Subset for alpha = 0.05			
		1	2	3	4
\$125,000 and higher	70	1.80			
Between \$50,000 and \$74,999	194		2.57		
Between \$75,000 and \$124,999	137		2.62		
Between \$25,000 and \$49,999	343			3.57	
Under \$25,000	256				4.25
Sig.		1.000	.769	1.000	1.000
Means for groups in homogeneous subsets are displayed.					
a. Uses Harmonic Mean Sample Size = 148.981.					
b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.					

<b>Preference: Runabout Sport 2 seat hybrid</b>					
Duncan <sup>a,b</sup>					
Income category	N	Subset for alpha = 0.05			
		1	2	3	4
\$125,000 and higher	70	2.64			
Between \$75,000 and \$124,999	137		3.47		
Between \$50,000 and \$74,999	194		3.61		
Between \$25,000 and \$49,999	343			4.67	
Under \$25,000	256				5.09
Sig.		1.000	.452	1.000	1.000
Means for groups in homogeneous subsets are displayed.					
a. Uses Harmonic Mean Sample Size = 148.981.					
b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.					

<b>Preference: Runabout with Luggage 2 seat hybrid</b>				
Duncan <sup>a,b</sup>				
Income category	N	Subset for alpha = 0.05		
		1	2	3
\$125,000 and higher	70	2.34		
Between \$75,000 and \$124,999	137	2.61		
Under \$25,000	256		3.07	
Between \$50,000 and \$74,999	194			4.45
Between \$25,000 and \$49,999	343			4.71
Sig.		.163	1.000	.172
Means for groups in homogeneous subsets are displayed.				
a. Uses Harmonic Mean Sample Size = 148.981.				
b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.				

<b>Preference: Economy 4 seat hybrid</b>				
Duncan <sup>a,b</sup>				
Income category	N	Subset for alpha = 0.05		
		1	2	3
Under \$25,000	256	2.68		
Between \$25,000 and \$49,999	343	2.86		
Between \$50,000 and \$74,999	194		3.64	
\$125,000 and higher	70			5.24
Between \$75,000 and \$124,999	137			5.50
Sig.		.317	1.000	.151
Means for groups in homogeneous subsets are displayed.				
a. Uses Harmonic Mean Sample Size = 148.981.				
b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.				

<b>Preference: Standard 4 seat hybrid</b>				
Duncan <sup>a,b</sup>				

Income category	N	Subset for alpha = 0.05			
		1	2	3	4
Under \$25,000	256	4.49			
Between \$25,000 and \$49,999	343		4.87		
Between \$50,000 and \$74,999	194			5.23	
Between \$75,000 and \$124,999	137			5.31	5.31
\$125,000 and higher	70				5.67
Sig.		1.000	1.000	.657	.053
Means for groups in homogeneous subsets are displayed.					
a. Uses Harmonic Mean Sample Size = 148.981.					
b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.					

Table 17.6: Size of Home Town or City Oneway Descriptives

Descriptives					
		N	Mean	Std. Deviation	Std. Error
Preference: Super Cycle 1 seat hybrid	Under 10,000	154	2.38	1.396	.112
	10,00 to 99,999	177	2.58	1.506	.113
	100,000 to 499,999	176	3.22	1.615	.122
	500,000 to 1 million	226	3.42	1.685	.112
	1 million and more	267	4.25	1.712	.105
	Total	1000	3.30	1.744	.055
Preference: Runabout Sport 2 seat hybrid	Under 10,000	154	3.23	1.592	.128
	10,00 to 99,999	177	3.51	1.589	.119
	100,000 to 499,999	176	4.26	1.534	.116
	500,000 to 1 million	226	4.41	1.604	.107
	1 million and more	267	5.25	1.474	.090
	Total	1000	4.13	1.644	.055

	Total	1000	4.27	1.712	.054
Preference: Runabout with Luggage 2 seat hybrid	Under 10,000	154	3.21	1.878	.151
	10,00 to 99,999	177	3.22	1.778	.134
	100,000 to 499,999	176	2.32	1.516	.114
	500,000 to 1 million	226	4.23	1.367	.091
	1 million and more	267	5.08	1.477	.090
	Total	1000	3.79	1.866	.059
Preference: Economy 4 seat hybrid	Under 10,000	154	3.38	1.812	.146
	10,00 to 99,999	177	3.53	1.794	.135
	100,000 to 499,999	176	4.06	1.751	.132
	500,000 to 1 million	226	4.24	1.803	.120
	1 million and more	267	2.54	1.515	.093
	Total	1000	3.50	1.839	.058
Preference: Standard 4 seat hybrid	Under 10,000	154	5.42	1.282	.103
	10,00 to 99,999	177	5.44	1.469	.110
	100,000 to 499,999	176	5.43	1.337	.101
	500,000 to 1 million	226	5.46	1.418	.094
	1 million and more	267	3.64	1.518	.093
	Total	1000	4.96	1.626	.051

Descriptives					
		95% Confidence Interval for Mean		Mini mum	Maxi mum
		Lower Bound	Upper Bound		
Preference: Super Cycle 1 seat hybrid	Under 10,000	2.15	2.60	1	6
	10,00 to 99,999	2.36	2.81	1	7
	100,000 to	2.98	3.46	1	7

	499,999				
	500,000 to 1 million	3.20	3.64	1	7
	1 million and more	4.04	4.45	1	7
	Total	3.19	3.40	1	7
Preference: Runabout Sport 2 seat hybrid	Under 10,000	2.98	3.49	1	7
	10,00 to 99,999	3.27	3.74	1	7
	100,000 to 499,999	4.03	4.49	1	7
	500,000 to 1 million	4.20	4.62	1	7
	1 million and more	5.07	5.42	1	7
	Total	4.16	4.37	1	7
Preference: Runabout with Luggage 2 seat hybrid	Under 10,000	2.91	3.51	1	7
	10,00 to 99,999	2.96	3.48	1	7
	100,000 to 499,999	2.09	2.54	1	7
	500,000 to 1 million	4.06	4.41	1	6
	1 million and more	4.90	5.26	1	7
	Total	3.67	3.90	1	7
Preference: Economy 4 seat hybrid	Under 10,000	3.09	3.67	1	7
	10,00 to 99,999	3.26	3.79	1	7
	100,000 to 499,999	3.80	4.32	1	7
	500,000 to 1 million	4.01	4.48	1	7
	1 million and more	2.35	2.72	1	7
	Total	3.38	3.61	1	7
Preference: Standard 4 seat	Under 10,000	5.22	5.63	1	7
	10,00 to	5.22	5.66	1	7



hybrid	99,999				
	100,000 to 499,999	5.23	5.63	1	7
	500,000 to 1 million	5.27	5.65	1	7
	1 million and more	3.46	3.83	1	7
	Total	4.86	5.06	1	7

Table 17.6: Size of Home Town or City ANOVA

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Preference: Super Cycle 1 seat hybrid	Between Groups	466.220	4	116.555	45.087	.000
	Within Groups	2572.164	995	2.585		
	Total	3038.384	999			
Preference: Runabout Sport 2 seat hybrid	Between Groups	527.211	4	131.803	54.642	.000
	Within Groups	2400.033	995	2.412		
	Total	2927.244	999			
Preference: Runabout with Luggage 2 seat hybrid	Between Groups	981.507	4	245.377	97.711	.000
	Within Groups	2498.697	995	2.511		
	Total	3480.204	999			
Preference: Economy 4 seat hybrid	Between Groups	431.344	4	107.836	36.413	.000
	Within Groups	2946.631	995	2.961		
	Total	3377.975	999			

Preference: Standard 4 seat hybrid	Between Groups	630.828	4	157.707	78.0	.000
	Within Groups	2009.57 2	995	2.020		
	Total	2640.40 0	999			

Table 17.6: Size of Home Town or City Post Hoc and Homogenous Subsets

Preference: Super Cycle 1 seat hybrid				
Duncan <sup>a,b</sup>				
Size of home town or city	N	Subset for alpha = 0.05		
		1	2	3
Under 10,000	154	2.38		
10,00 to 99,999	177	2.58		
100,000 to 499,999	176		3.22	
500,000 to 1 million	226		3.42	
1 million and more	267			4.25
Sig.		.211	.236	1.000
Means for groups in homogeneous subsets are displayed.				
a. Uses Harmonic Mean Sample Size = 192.344.				
b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.				

Preference: Runabout Sport 2 seat hybrid				
Duncan <sup>a,b</sup>				
Size of home town or city	N	Subset for alpha = 0.05		
		1	2	3
Under 10,000	154	3.23		
10,00 to 99,999	177	3.51		
100,000 to 499,999	176		4.26	
500,000 to 1 million	226		4.41	
1 million and more	267			5.25
Sig.		.083	.358	1.000
Means for groups in homogeneous subsets are displayed.				
a. Uses Harmonic Mean Sample Size = 192.344.				
b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.				

<b>Preference: Runabout with Luggage 2 seat hybrid</b>					
Duncan <sup>a,b</sup>					
Size of home town or city	N	Subset for alpha = 0.05			
		1	2	3	4
100,000 to 499,999	176	2.32			
Under 10,000	154		3.21		
10,00 to 99,999	177	3.22			
500,000 to 1 million	226			4.23	
1 million and more	267				5.08
Sig.		1.000	.938	1.000	1.000
Means for groups in homogeneous subsets are displayed.					
a. Uses Harmonic Mean Sample Size = 192.344.					
b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.					

<b>Preference: Economy 4 seat hybrid</b>					
Duncan <sup>a,b</sup>					
Size of home town or city	N	Subset for alpha = 0.05			
		1	2	3	
1 million and more	267	2.54			
Under 10,000	154		3.38		
10,00 to 99,999	177	3.53			
100,000 to 499,999	176			4.06	
500,000 to 1 million	226			4.24	
Sig.		1.000	.397	.303	
Means for groups in homogeneous subsets are displayed.					
a. Uses Harmonic Mean Sample Size = 192.344.					
b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.					

<b>Preference: Standard 4 seat hybrid</b>			
Duncan <sup>a,b</sup>			
Size of home town or city	N	Subset for alpha = 0.05	
		1	2
1 million and more	267	3.64	
Under 10,000	154		5.42
100,000 to 499,999	176		5.43
10,00 to 99,999	177		5.44
500,000 to 1 million	226		5.46
Sig.		1.000	.815
Means for groups in homogeneous subsets are displayed.			
a. Uses Harmonic Mean Sample Size = 192.344.			
b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.			

*Chapter 18 – Age \* Level of Education Crosstab*

<b>Case Processing Summary</b>						
	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Favorite television show type * Age category	1000	100.0%	0	.0%	1000	100.0%

<b>Favorite television show type * Age category Crosstabulation</b>					
		Age category			
		Between 18 and 24	Between 25 and 34	Between 35 and 49	
Favorite television show type	Comedy	Count	14	31	63
		% within Favorite television	7.3%	16.2%	33.0%

	show type			
Drama	Count	9	31	49
	% within Favorite television show type	5.8%	19.9%	31.4%
Movies/Mini-Series	Count	8	32	63
	% within Favorite television show type	4.1%	16.2%	32.0%
News/Documentary	Count	3	4	20
	% within Favorite television show type	3.1%	4.1%	20.4%
Reality	Count	30	21	29
	% within Favorite television show type	21.3%	14.9%	20.6%
Science-Fiction	Count	46	11	17
	% within Favorite television show type	41.8%	10.0%	15.5%
Sports	Count	11	44	15
	% within Favorite television show type	10.3%	41.1%	14.0%
Total	Count	121	174	256
	% within Favorite television show type	12.1%	17.4%	25.6%

<b>Favorite television show type * Age category Crosstabulation</b>					
			Age category		Total
			Between 50 and 64	65 and older	
Favorite television show type	Comedy	Count	49	34	191
		% within Favorite television show type	25.7%	17.8%	100.0%
	Drama	Count	42	25	156
		% within Favorite television show type	26.9%	16.0%	100.0%
	Movies/ Mini- Series	Count	53	41	197
		% within Favorite television show type	26.9%	20.8%	100.0%
	News/D ocument ary	Count	31	40	98
		% within Favorite television show type	31.6%	40.8%	100.0%
	Reality	Count	30	31	141
		% within Favorite television show type	21.3%	22.0%	100.0%
	Science- Fiction	Count	15	21	110
		% within Favorite television show type	13.6%	19.1%	100.0%
	Sports	Count	19	18	107
		% within Favorite television	17.8%	16.8%	100.0%

		show type		
Total	Count	239	210	1000
	% within	23.9%	21.0%	100.0%
	Favorite television show type			

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	220.644 <sup>a</sup>	24	.000
Likelihood Ratio	189.507	24	.000
Linear-by-Linear Association	20.081	1	.000
N of Valid Cases	1000		
a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 11.86.			

*Chapter 18 – Favorite Local Newspaper Section \* Level of Education Crosstab*

Case Processing Summary						
	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Favorite local newspaper section * Level of education	1000	100.0%	0	.0%	1000	100.0%
Favorite radio genre * Level of education	1000	100.0%	0	.0%	1000	100.0%

Crosstab		
	Level of education	
	Did not complete high school	Some college degree

		school			
Favorite local newspaper section	Editorial	Count	11	21	19
		% within Favorite local newspaper section	14.1%	26.9%	24.4%
	Business	Count	0	34	26
		% within Favorite local newspaper section	.0%	35.1%	26.8%
	Local news	Count	24	74	82
		% within Favorite local newspaper section	9.6%	29.7%	32.9%
	National news	Count	19	45	18
		% within Favorite local newspaper section	10.5%	24.9%	9.9%
	Sports	Count	46	85	55
		% within Favorite local newspaper section	21.6%	39.9%	25.8%
	Entertainment	Count	94	39	14
		% within Favorite local newspaper section	51.6%	21.4%	7.7%
	Total	Count	194	298	214
		% within Favorite local newspaper section	19.4%	29.8%	21.4%



<b>Crosstab</b>						
			Level of education		Total	
			College degree	Post-undergraduate degree		
Favorite local newspaper section	Editorial	Count	21	6	78	
		% within Favorite local newspaper section	26.9%	7.7%	100.0%	
	Business	Count	31	6	97	
		% within Favorite local newspaper section	32.0%	6.2%	100.0%	
	Local news	Count	57	12	249	
		% within Favorite local newspaper section	22.9%	4.8%	100.0%	
	National news	Count	60	39	181	
		% within Favorite local newspaper section	33.1%	21.5%	100.0%	
	Sports	Count	23	4	213	
		% within Favorite local newspaper section	10.8%	1.9%	100.0%	
	Entertainment	Count	30	5	182	
		% within Favorite local newspaper section	16.5%	2.7%	100.0%	
	Total		Count	222	72	1000
			% within	22.2%	7.2%	100.0%

Favorite local newspaper section	0%
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Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	295.167 <sup>a</sup>	20	.000
Likelihood Ratio	281.485	20	.000
Linear-by-Linear Association	73.962	1	.000
N of Valid Cases	1000		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 5.62.

Chapter 18 – Favorite Radio Genre \* Level of Education Crosstab

Crosstab					
			Level of education		
			Did not complete high school	High school degree	Some college
Favorite radio genre	Classic Pop & Rock	Count	11	13	22
		% within Favorite radio genre	14.9%	17.6%	29.7%
	Country	Count	29	78	51
		% within Favorite radio genre	15.2%	40.8%	26.7%
	Easy listening	Count	59	61	35
		% within Favorite radio genre	25.8%	26.6%	15.3%
	Jazz & Blues	Count	37	46	37
		% within Favorite radio genre	19.4%	24.1%	19.4%

	Pop & Chart	Count	43	64	33
		% within Favorite radio genre	23.2%	34.6%	17.8%
	Talk	Count	15	36	36
		% within Favorite radio genre	11.5%	27.7%	27.7%
Total		Count	194	298	214
		% within Favorite radio genre	19.4%	29.8%	21.4%

Crosstab					
		Level of education		Total	
		College degree	Post-undergraduate degree		
Favorite radio genre	Classic Pop & Rock	Count	21	7	74
		% within Favorite radio genre	28.4%	9.5%	100.0%
	Country	Count	27	6	191
		% within Favorite radio genre	14.1%	3.1%	100.0%
	Easy listening	Count	54	20	229
		% within Favorite radio genre	23.6%	8.7%	100.0%
	Jazz & Blues	Count	46	25	191
		% within Favorite radio genre	24.1%	13.1%	100.0%
	Pop & Chart	Count	33	12	185
		% within Favorite radio genre	17.8%	6.5%	100.0%

		genre			
	Talk	Count	41	2	130
		% within	31.5%	1.5%	100.
		Favorite radio genre			0%
Total		Count	222	72	1000
		% within	22.2%	7.2%	100.
		Favorite radio genre			0%

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	76.476 <sup>a</sup>	20	.000
Likelihood Ratio	78.957	20	.000
Linear-by-Linear Association	.120	1	.729
N of Valid Cases	1000		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 5.33.

Chapter 18 – Favorite magazine type \* Income Crosstab

Case Processing Summary						
	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Favorite magazine type * Income category	1000	100.0%	0	.0%	1000	100.0%

Favorite magazine type * Income category Crosstabulation			
	Income category		
	Under \$25,000	Between \$25,000 and \$50,000	Between \$50,000 and \$75,000
		0	0

			0 and \$49,99 9	0 and \$74,99 9	
Favorite magazine type	Business & Money	Count	7	14	10
		% within Favorite magazine type	7.1%	14.3%	10.2%
	Music & Entertainmen t	Count	108	125	33
		% within Favorite magazine type	38.4%	44.5%	11.7%
	Family & Parenting	Count	27	60	65
		% within Favorite magazine type	14.8%	32.8%	35.5%
	Sports & Outdoors	Count	30	36	13
		% within Favorite magazine type	34.5%	41.4%	14.9%
	Home & Garden	Count	11	24	33
		% within Favorite magazine type	12.4%	27.0%	37.1%
	Cooking- Food & Wine	Count	18	23	13
		% within Favorite magazine type	20.7%	26.4%	14.9%
	Trucks-Cars & Motorcycles	Count	41	32	11
		% within Favorite magazine type	41.8%	32.7%	11.2%
	News-Politics	Count	14	29	16

	& Current Events	% within Favorite magazine type	18.2%	37.7%	20.8%
Total		Count	256	343	194
		% within Favorite magazine type	25.6%	34.3%	19.4%

Favorite magazine type * Income category Crosstabulation					
		Income category			Total
		Between \$75,000 and \$124,999			
Favorite magazine type	Business & Money	Count	36	31	98
		% within Favorite magazine type	36.7%	31.6%	100.0%
	Music & Entertainment	Count	11	4	281
		% within Favorite magazine type	3.9%	1.4%	100.0%
	Family & Parenting	Count	28	3	183
		% within Favorite magazine type	15.3%	1.6%	100.0%
	Sports & Outdoors	Count	7	1	87
		% within Favorite magazine type	8.0%	1.1%	100.0%
	Home &	Count	18	3	89
		% within Favorite magazine type			

Garden	% within Favorite magazine type	20.2%	3.4%	100.0%
	Count	17	16	87
Cooking-Food & Wine	% within Favorite magazine type	19.5%	18.4%	100.0%
	Count	11	3	98
Trucks-Cars & Motorcycles	% within Favorite magazine type	11.2%	3.1%	100.0%
	Count	9	9	77
News-Politics & Current Events	% within Favorite magazine type	11.7%	11.7%	100.0%
	Count	137	70	1000
Total	% within Favorite magazine type	13.7%	7.0%	100.0%

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	339.500 <sup>a</sup>	28	.000
Likelihood Ratio	304.610	28	.000
Linear-by-Linear Association	.229	1	.632
N of Valid Cases	1000		
a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 5.39.			

## Chapter 18 – Preference versus Lifestyle Correlations

Correlations					
		Preference: Super Cycle 1 seat hybrid	Preference: Runabout Sport 2 seat hybrid	Preference: Runabout with Luggage 2 seat hybrid	Preference: Economy 4 seat hybrid
Preference: Super Cycle 1 seat hybrid	Pearson Correlation	1	.650**	.139**	-.416**
	Sig. (2- tailed)		.000	.000	.000
	N	1000	1000	1000	1000
Preference: Runabout Sport 2 seat hybrid	Pearson Correlation	.650**	1	.187**	-.429**
	Sig. (2- tailed)	.000		.000	.000
	N	1000	1000	1000	1000
Preference: Runabout with Luggage 2 seat hybrid	Pearson Correlation	.139**	.187**	1	-.245**
	Sig. (2- tailed)	.000	.000		.000
	N	1000	1000	1000	1000
Preference: Economy 4 seat hybrid	Pearson Correlation	-.416**	-.429**	-.245**	1
	Sig. (2- tailed)	.000	.000	.000	
	N	1000	1000	1000	1000
Preference: Standard 4 seat hybrid	Pearson Correlation	-.522**	-.516**	-.240**	.443**
	Sig. (2- tailed)	.000	.000	.000	.000
	N	1000	1000	1000	1000
Life Style: Novelist	Pearson Correlation	.788**	.547**	.119**	-.352**



	Sig. (2-tailed)	.000	.000	.000	.000
	N	1000	1000	1000	1000
Life Style: Innovator	Pearson Correlation	.495**	.731**	.140**	-.306**
	Sig. (2-tailed)	.000	.000	.000	.000
	N	1000	1000	1000	1000
Life Style: Trendsetter	Pearson Correlation	.195**	.218**	.719**	-.179**
	Sig. (2-tailed)	.000	.000	.000	.000
	N	1000	1000	1000	1000
Life Style: Forerunner	Pearson Correlation	-.315**	-.331**	-.228**	.731**
	Sig. (2-tailed)	.000	.000	.000	.000
	N	1000	1000	1000	1000
Life Style: Mainstreamer	Pearson Correlation	-.417**	-.403**	-.195**	.366**
	Sig. (2-tailed)	.000	.000	.000	.000
	N	1000	1000	1000	1000
Life Style: Classic	Pearson Correlation	-.378**	-.577**	-.070*	.227**
	Sig. (2-tailed)	.000	.000	.027	.000

N	1000	1000	1000	1000
**. Correlation is significant at the 0.01 level (2-tailed).				
*. Correlation is significant at the 0.05 level (2-tailed).				

Correlations					
		Preference: Standard 4 seat hybrid	Life Style: Novelist	Life Style: Innovator	Life Style: Trendsetter
Preference: Super Cycle 1 seat hybrid	Pearson Correlation	-.522**	.788**	.495**	.195**
	Sig. (2- tailed)	.000	.000	.000	.000
	N	1000	1000	1000	1000
Preference: Runabout Sport 2 seat hybrid	Pearson Correlation	-.516**	.547**	.731**	.218**
	Sig. (2- tailed)	.000	.000	.000	.000
	N	1000	1000	1000	1000
Preference: Runabout with Luggage 2 seat hybrid	Pearson Correlation	-.240**	.119**	.140**	.719**
	Sig. (2- tailed)	.000	.000	.000	.000
	N	1000	1000	1000	1000
Preference: Economy 4 seat hybrid	Pearson Correlation	.443**	-.352**	-.306**	-.179**
	Sig. (2- tailed)	.000	.000	.000	.000
	N	1000	1000	1000	1000

Preference: Standard 4 seat hybrid	Pearson Correlation	1	-.424**	-.372**	-.173**
	Sig. (2- tailed)		.000	.000	.000
	N	1000	1000	1000	1000
Life Style: Novelist	Pearson Correlation	-.424**	1	.415**	.179**
	Sig. (2- tailed)	.000		.000	.000
	N	1000	1000	1000	1000
Life Style: Innovator	Pearson Correlation	-.372**	.415**	1	.136**
	Sig. (2- tailed)	.000	.000		.000
	N	1000	1000	1000	1000
Life Style: Trendsetter	Pearson Correlation	-.173**	.179**	.136**	1
	Sig. (2- tailed)	.000	.000	.000	
	N	1000	1000	1000	1000
Life Style: Forerunner	Pearson Correlation	.346**	-.278**	-.233**	-.170**
	Sig. (2- tailed)	.000	.000	.000	.000
	N	1000	1000	1000	1000
Life Style: Mainstreamer	Pearson Correlation	.746**	-.342**	-.280**	-.147**
	Sig. (2- tailed)	.000	.000	.000	.000
	N	1000	1000	1000	1000
Life Style: Classic	Pearson Correlation	.280**	-.303**	-.783**	-.087**
	Sig. (2- tailed)	.000	.000	.000	.006

	tailed)				
	N	1000	1000	1000	1000
**. Correlation is significant at the 0.01 level (2-tailed).					

Correlations				
		Life Style: Forerunner	Life Style: Mainstreamer	Life Style: Classic
Preference: Super Cycle 1 seat hybrid	Pearson Correlation	-.315**	-.417**	-.378**
	Sig. (2-tailed)	.000	.000	.000
	N	1000	1000	1000
Preference: Runabout Sport 2 seat hybrid	Pearson Correlation	-.331**	-.403**	-.577**
	Sig. (2-tailed)	.000	.000	.000
	N	1000	1000	1000
Preference: Runabout with Luggage 2 seat hybrid	Pearson Correlation	-.228**	-.195**	-.070*
	Sig. (2-tailed)	.000	.000	.027
	N	1000	1000	1000
Preference: Economy 4 seat hybrid	Pearson Correlation	.731**	.366**	.227**
	Sig. (2-tailed)	.000	.000	.000
	N	1000	1000	1000
Preference: Standard 4 seat hybrid	Pearson Correlation	.346**	.746**	.280**
	Sig. (2-tailed)	.000	.000	.000
	N	1000	1000	1000
Life Style: Novelist	Pearson Correlation	-.278**	-.342**	-.303**
	Sig. (2-tailed)	.000	.000	.000
	N	1000	1000	1000
Life Style: Innovator	Pearson Correlation	-.233**	-.280**	-.783**

	Sig. (2-tailed)	.000	.000	.000
	N	1000	1000	1000
Life Style: Trendsetter	Pearson Correlation	-.170**	-.147**	-.087**
	Sig. (2-tailed)	.000	.000	.006
	N	1000	1000	1000
Life Style: Forerunner	Pearson Correlation	1	.279**	.199**
	Sig. (2-tailed)		.000	.000
	N	1000	1000	1000
Life Style: Mainstreamer	Pearson Correlation	.279**	1	.210**
	Sig. (2-tailed)	.000		.000
	N	1000	1000	1000
Life Style: Classic	Pearson Correlation	.199**	.210**	1
	Sig. (2-tailed)	.000	.000	
	N	1000	1000	1000
**. Correlation is significant at the 0.01 level (2-tailed).				
*. Correlation is significant at the 0.05 level (2-tailed).				

*Chapter 19 – Regression for Preference: Super Cycle one-seat hybrid*

*Table 19.1 - Beliefs and Attitudes:*

<b>Model Summary</b>				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.200 <sup>a</sup>	.040	.028	1.719
.				
.				
.				
.				
.				
.				
.				
.				

a. Predictors: (Constant), Hybrid autos that use alternative fuels will slow down global warming., I am worried about global warming., Gasoline prices will remain high in the future., We should be looking for gasoline substitutes., Hybrid autos that use alternative fuels will reduce fuel emissions., We need to do something to slow global warming., Gasoline emissions contribute to global warming., Gasoline prices are too high now., Hybrid autos that use alternative fuels will keep gas prices down., High gasoline prices will impact what type of autos are purchased., Americans use too much gasoline., Global warming is a real threat.

ANOVA <sup>b</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	121.919	12	10.160	3.438	.000 <sup>a</sup>
	Residual	2916.465	987	2.955		
	Total	3038.384	999			

a. Predictors: (Constant), Hybrid autos that use alternative fuels will slow down global warming., I am worried about global warming., Gasoline prices will remain high in the future., We should be looking for gasoline substitutes., Hybrid autos that use alternative fuels will reduce fuel emissions., We need to do something to slow global warming., Gasoline emissions contribute to global warming., Gasoline prices are too high now., Hybrid autos that use alternative fuels will keep gas prices down., High gasoline prices will impact what type of autos are purchased., Americans use too much gasoline., Global warming is a real threat.

b. Dependent Variable: Preference: Super Cycle 1 seat hybrid

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.910	.386		10.1	.000

				41	
I am worried about global warming.	-.001	.049	-.001	-.029	.977
Global warming is a real threat.	.056	.046	.059	1.23 2	.218
We need to do something to slow global warming.	-.069	.033	-.076	- 2.09 8	.036
Gasoline emissions contribute to global warming.	-.132	.032	-.172	- 4.10 6	.000
Americans use too much gasoline.	.006	.040	.007	.149	.881
We should be looking for gasoline substitutes.	.070	.028	.087	2.55 2	.011
Gasoline prices will remain high in the future.	.011	.029	.012	.365	.715
Gasoline prices are too high now.	.015	.051	.012	.301	.764
High gasoline prices will impact what type of autos are purchased.	.010	.035	.013	.287	.774
Hybrid autos that use alternative fuels will reduce fuel emissions.	-.036	.030	-.042	- 1.18 6	.236
Hybrid autos that use alternative fuels will keep gas prices down.	-.034	.033	-.042	- 1.03 7	.300

Hybrid autos that use alternative fuels will slow down global warming.	-.032	.028	-.039	-1.117	.264
a. Dependent Variable: Preference: Super Cycle 1 seat hybrid					

Table 19.1 - Demographics

Variables Entered/Removed <sup>b</sup>			
Model	Variables Entered	Variables Removed	Method
1	Income level, Size of home town or city, Gender, Marital status, Age , Level of education, Number of people in household <sup>a</sup>	.	Enter
a. All requested variables entered.			
b. Dependent Variable: Preference: Super Cycle 1 seat hybrid			

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.777 <sup>a</sup>	.603	.600	1.103



a. Predictors: (Constant), Income level, Size of home town or city, Gender, Marital status, Age , Level of education, Number of people in household

ANOVA <sup>b</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1832.390	7	261.770	215.321	.000 <sup>a</sup>
	Residual	1205.994	992	1.216		
	Total	3038.384	999			
a. Predictors: (Constant), Income level, Size of home town or city, Gender, Marital status, Age , Level of education, Number of people in household						
b. Dependent Variable: Preference: Super Cycle 1 seat hybrid						

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	8.271	.236		35.103	.000
	Size of home town or city	.001	.000	.341	16.926	.000
	Gender	-.368	.070	-.106	-5.243	.000
	Marital status	-.679	.095	-.195	-7.153	.000
	Number of people in	-.431	.036	-.342	-11.93	.000

household				9	
Age	-.034	.002	-.320	-	.000
				14.14	
				1	
Level of education	-.139	.013	-.217	-	.000
				10.46	
				5	
Income level	-.013	.001	-.280	-	.000
				13.20	
				8	

a. Dependent Variable: Preference: Super Cycle 1 seat hybrid

*Regression for Preference: Runabout Sport two-seat hybrid*

*Table 19.2 – Beliefs and Attitudes*

<b>Model Summary</b>				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.224 <sup>a</sup>	.050	.039	1.678

a. Predictors: (Constant), Hybrid autos that use alternative fuels will slow down global warming., I am worried about global warming., Gasoline prices will remain high in the future., We should be looking for gasoline substitutes., Hybrid autos that use alternative fuels will reduce fuel emissions., We need to do something to slow global warming., Gasoline emissions contribute to global warming., Gasoline prices are too high now., Hybrid autos that use alternative fuels will keep gas prices down., High gasoline prices will impact what type of autos are

purchased., Americans use too much gasoline., Global warming is a real threat.

ANOVA <sup>b</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	146.880	12	12.240	4.345	.000 <sup>a</sup>
	Residual	2780.364	987	2.817		
	Total	2927.244	999			

a. Predictors: (Constant), Hybrid autos that use alternative fuels will slow down global warming., I am worried about global warming., Gasoline prices will remain high in the future., We should be looking for gasoline substitutes., Hybrid autos that use alternative fuels will reduce fuel emissions., We need to do something to slow global warming., Gasoline emissions contribute to global warming., Gasoline prices are too high now., Hybrid autos that use alternative fuels will keep gas prices down., High gasoline prices will impact what type of autos are purchased., Americans use too much gasoline., Global warming is a real threat.

b. Dependent Variable: Preference: Runabout Sport 2 seat hybrid

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.087	.376		13.512	.000
	I am worried about global warming.	-.002	.048	-.002	-.047	.963
	Global warming is a real threat.	.057	.045	.061	1.281	.201
	We need to do something to slow global warming.	-.061	.032	-.068	-1.894	.058

Gasoline emissions contribute to global warming.	-.169	.031	-.225	-5.380	.000
Americans use too much gasoline.	.005	.039	.006	.134	.894
We should be looking for gasoline substitutes.	.030	.027	.038	1.107	.268
Gasoline prices will remain high in the future.	.004	.028	.004	.135	.892
Gasoline prices are too high now.	.003	.050	.002	.051	.960
High gasoline prices will impact what type of autos are purchased.	.023	.034	.031	.660	.509
Hybrid autos that use alternative fuels will reduce fuel emissions.	.014	.029	.017	.490	.624
Hybrid autos that use alternative fuels will keep gas prices down.	-.055	.032	-.069	-1.705	.088
Hybrid autos that use alternative fuels will slow down global warming.	-.020	.028	-.025	-.731	.465
a. Dependent Variable: Preference: Runabout Sport 2 seat hybrid					

Table 19.2 – Demographics

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.224 <sup>a</sup>	.050	.039	1.678

a. Predictors: (Constant), Hybrid autos that use alternative fuels will slow down global warming., I am worried about global warming., Gasoline prices will remain high in the future., We should be looking for gasoline substitutes., Hybrid autos that use alternative fuels will reduce fuel emissions., We need to do something to slow global warming., Gasoline emissions contribute to global warming., Gasoline prices are too high now., Hybrid autos that use alternative fuels will keep gas prices down., High gasoline prices will impact what type of autos are purchased., Americans use too much gasoline., Global warming is a real threat.

ANOVA <sup>b</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	146.880	12	12.240	4.345	.000 <sup>a</sup>
	Residual	2780.364	987	2.817		
	Total	2927.244	999			

a. Predictors: (Constant), Hybrid autos that use alternative fuels will slow down global warming., I am worried about global warming., Gasoline prices will remain high in the future., We should be looking for gasoline substitutes., Hybrid autos that use alternative fuels will reduce fuel emissions., We need to do something to slow global warming., Gasoline emissions contribute to global warming., Gasoline prices are too high now., Hybrid autos that use alternative fuels will keep gas prices down., High gasoline prices will impact what type of autos are purchased., Americans use too much gasoline., Global warming is a real threat.

b. Dependent Variable: Preference: Runabout Sport 2 seat hybrid

		Coefficients <sup>a</sup>				
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.087	.376		13.512	.000
	I am worried about global warming.	-.002	.048	-.002	-.047	.963
	Global warming is a real threat.	.057	.045	.061	1.281	.201
	We need to do something to slow global warming.	-.061	.032	-.068	-1.894	.058
	Gasoline emissions contribute to global warming.	-.169	.031	-.225	-5.380	.000
	Americans use too much gasoline.	.005	.039	.006	.134	.894
	We should be looking for gasoline substitutes.	.030	.027	.038	1.107	.268
	Gasoline prices will remain high in the future.	.004	.028	.004	.135	.892
	Gasoline prices are too high now.	.003	.050	.002	.051	.960

High gasoline prices will impact what type of autos are purchased.	.023	.034	.031	.660	.509
Hybrid autos that use alternative fuels will reduce fuel emissions.	.014	.029	.017	.490	.624
Hybrid autos that use alternative fuels will keep gas prices down.	-.055	.032	-.069	-1.705	.088
Hybrid autos that use alternative fuels will slow down global warming.	-.020	.028	-.025	-.731	.465
a. Dependent Variable: Preference: Runabout Sport 2 seat hybrid					

*Regression for Preference: Runabout with Luggage two-seat hybrid*

*Table 19.3 – Beliefs and Attitudes*

<b>Model Summary</b>				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.141 <sup>a</sup>	.020	.008	1.859
.				
.				
.				
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.				
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.				

a. Predictors: (Constant), Hybrid autos that use alternative fuels will slow down global warming., I am worried about global warming., Gasoline prices will remain high in the future., We should be looking for gasoline substitutes., Hybrid autos that use alternative fuels will reduce fuel emissions., We need to do something to slow global warming., Gasoline emissions contribute to global warming., Gasoline prices are too high now., Hybrid autos that use alternative fuels will keep gas prices down., High gasoline prices will impact what type of autos are purchased., Americans use too much gasoline., Global warming is a real threat.

ANOVA <sup>b</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	69.261	12	5.772	1.670	.068 <sup>a</sup>
	Residual	3410.943	987	3.456		
	Total	3480.204	999			

a. Predictors: (Constant), Hybrid autos that use alternative fuels will slow down global warming., I am worried about global warming., Gasoline prices will remain high in the future., We should be looking for gasoline substitutes., Hybrid autos that use alternative fuels will reduce fuel emissions., We need to do something to slow global warming., Gasoline emissions contribute to global warming., Gasoline prices are too high now., Hybrid autos that use alternative fuels will keep gas prices down., High gasoline prices will impact what type of autos are purchased., Americans use too much gasoline., Global warming is a real threat.

b. Dependent Variable: Preference: Runabout with Luggage 2 seat hybrid

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.997	.417		9.584	.000



I am worried about global warming.	-.017	.053	-.014	-.323	.746
Global warming is a real threat.	-.043	.050	-.043	-.876	.381
We need to do something to slow global warming.	.018	.036	.019	.507	.613
Gasoline emissions contribute to global warming.	.081	.035	.099	2.33 3	.020
Americans use too much gasoline.	.024	.044	.026	.546	.585
We should be looking for gasoline substitutes.	.002	.030	.003	.079	.937
Gasoline prices will remain high in the future.	.050	.031	.053	1.57 7	.115
Gasoline prices are too high now.	-.046	.055	-.034	-.846	.398
High gasoline prices will impact what type of autos are purchased.	.001	.038	.001	.029	.977
Hybrid autos that use alternative fuels will reduce fuel emissions.	-.079	.033	-.087	- 2.42 6	.015
Hybrid autos that use alternative fuels will keep gas prices down.	-.013	.035	-.015	-.371	.711

Hybrid autos that use alternative fuels will slow down global warming.	.010	.031	.012	.333	.739
a. Dependent Variable: Preference: Runabout with Luggage 2 seat hybrid					

Table 19.3 – Demographics

Variables Entered/Removed <sup>b</sup>			
Model	Variables Entered	Variables Removed	Method
1	Income level, Size of home town or city, Gender, Marital status, Age , Level of education, Number of people in household <sup>a</sup>		Enter
a. All requested variables entered.			
b. Dependent Variable: Preference: Runabout with Luggage 2 seat hybrid			

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.626 <sup>a</sup>	.392	.388	1.460

a. Predictors: (Constant), Income level, Size of home town or city, Gender, Marital status, Age , Level of education, Number of people in household

ANOVA <sup>b</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1365.795	7	195.114	91.540	.000 <sup>a</sup>
	Residual	2114.409	992	2.131		
	Total	3480.204	999			

a. Predictors: (Constant), Income level, Size of home town or city, Gender, Marital status, Age , Level of education, Number of people in household

b. Dependent Variable: Preference: Runabout with Luggage 2 seat hybrid

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error			
1	(Constant)	2.219	.312		7.113	.000
	Size of home town or city	.002	.000	.496	19.897	.000
	Gender	-.038	.093	-.010	-.410	.682
	Marital status	1.071	.126	.287	8.523	.000
	Number of people in household	-.199	.048	-.147	-4.151	.000
	Age	-.023	.003	-.208	-7.440	.000
	Level of education	.168	.018	.245	9.554	.000
	Income level	-.012	.001	-.231	-8.80	.000

7
a. Dependent Variable: Preference: Runabout with Luggage 2 seat hybrid

*Regression for Preference: Economy four-seat hybrid*

*Table 19.4 – Beliefs and Attitudes*

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.336 <sup>a</sup>	.113	.102	1.742

a. Predictors: (Constant), Hybrid autos that use alternative fuels will slow down global warming., I am worried about global warming., Gasoline prices will remain high in the future., We should be looking for gasoline substitutes., Hybrid autos that use alternative fuels will reduce fuel emissions., We need to do something to slow global warming., Gasoline emissions contribute to global warming., Gasoline prices are too high now., Hybrid autos that use alternative fuels will keep gas prices down., High gasoline prices will impact what type of autos are purchased., Americans use too much gasoline., Global warming is a real threat.

ANOVA <sup>b</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	381.335	12	31.778	10.467	.000 <sup>a</sup>
	Residual	2996.640	987	3.036		
	Total	3377.975	999			

a. Predictors: (Constant), Hybrid autos that use alternative fuels will slow down global warming., I am worried about global warming., Gasoline prices will remain high in the future., We should be looking for gasoline substitutes., Hybrid autos that use alternative fuels will reduce fuel emissions., We need to do something to slow global warming., Gasoline emissions contribute to global warming., Gasoline prices are too high now., Hybrid autos that use alternative fuels will keep gas prices down., High gasoline prices will impact what type of autos are purchased., Americans use too much gasoline., Global warming is a real threat.

b. Dependent Variable: Preference: Economy 4 seat hybrid

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error			
1	(Constant)	2.148	.391		5.495	.000
	I am worried about global warming.	.026	.050	.021	.518	.604
	Global warming is a real threat.	-.124	.046	-.123	-2.663	.008
	We need to do something to slow global warming.	-.013	.033	-.014	-.396	.692
	Gasoline emissions contribute to global warming.	.199	.033	.246	6.093	.000
	Americans use too much gasoline.	.013	.041	.015	.320	.749
	We should be looking for	-.017	.028	-.020	-.611	.541

gasoline substitutes.					
Gasoline prices will remain high in the future.	.023	.029	.025	.776	.438
Gasoline prices are too high now.	-.061	.051	-.045	- 1.18 2	.238
High gasoline prices will impact what type of autos are purchased.	.016	.036	.020	.438	.661
Hybrid autos that use alternative fuels will reduce fuel emissions.	-.007	.030	-.008	-.245	.806
Hybrid autos that use alternative fuels will keep gas prices down.	.159	.033	.187	4.78 7	.000
Hybrid autos that use alternative fuels will slow down global warming.	.080	.029	.093	2.78 4	.005
a. Dependent Variable: Preference: Economy 4 seat hybrid					

Table 19.4 - Demographics

Variables Entered/Removed <sup>b</sup>			
Model	Variables Entered	Variables Removed	Method
1	Income level, Size of home town or city, Gender, Marital status, Age ,	.	Enter

Level of education, Number of people in household <sup>a</sup>
a. All requested variables entered.
b. Dependent Variable: Preference: Economy 4 seat hybrid

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.745 <sup>a</sup>	.555	.552	1.231

a. Predictors: (Constant), Income level, Size of home town or city, Gender, Marital status, Age , Level of education, Number of people in household

ANOVA <sup>b</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1874.774	7	267.825	176.744	.000 <sup>a</sup>
	Residual	1503.201	992	1.515		
	Total	3377.975	999			

a. Predictors: (Constant), Income level, Size of home town or city, Gender, Marital status, Age , Level of education, Number of people in household

b. Dependent Variable: Preference: Economy 4 seat hybrid

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-2.504	.263		-9.520	.000
	Size of home town or city	-.001	.000	-.208	-9.751	.000
	Gender	.061	.078	.017	.777	.437
	Marital status	.015	.106	.004	.145	.884
	Number of people in household	.042	.040	.031	1.038	.299
	Age	.044	.003	.394	16.463	.000
	Level of education	.249	.015	.368	16.793	.000
	Income level	.018	.001	.349	15.510	.000
a. Dependent Variable: Preference: Economy 4 seat hybrid						

*Regression for Preference: Standard four-seat hybrid*

*Table 19.5 – Beliefs and Attitudes*

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.218 <sup>a</sup>	.048	.036	1.596



a. Predictors: (Constant), Hybrid autos that use alternative fuels will slow down global warming., I am worried about global warming., Gasoline prices will remain high in the future., We should be looking for gasoline substitutes., Hybrid autos that use alternative fuels will reduce fuel emissions., We need to do something to slow global warming., Gasoline emissions contribute to global warming., Gasoline prices are too high now., Hybrid autos that use alternative fuels will keep gas prices down., High gasoline prices will impact what type of autos are purchased., Americans use too much gasoline., Global warming is a real threat.

ANOVA <sup>b</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	125.875	12	10.490	4.117	.000 <sup>a</sup>
	Residual	2514.525	987	2.548		
	Total	2640.400	999			
a. Predictors: (Constant), Hybrid autos that use alternative fuels will slow down global warming., I am worried about global warming., Gasoline prices will remain high in the future., We should be looking for gasoline substitutes., Hybrid autos that use alternative fuels will reduce fuel emissions., We need to do something to slow global warming., Gasoline emissions contribute to global warming., Gasoline prices are too high now., Hybrid autos that use alternative fuels will keep gas prices down., High gasoline prices will impact what type of autos are purchased., Americans use too much gasoline., Global warming is a real threat.						
b. Dependent Variable: Preference: Standard 4 seat hybrid						
Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		

1	(Constant)	4.596	.358		12.8 37	.000
	I am worried about global warming.	-.024	.046	-.021	-.519	.604
	Global warming is a real threat.	-.057	.043	-.065	- 1.35 1	.177
	We need to do something to slow global warming.	-.004	.031	-.005	-.127	.899
	Gasoline emissions contribute to global warming.	.149	.030	.209	5.00 2	.000
	Americans use too much gasoline.	.023	.037	.029	.623	.533
	We should be looking for gasoline substitutes.	-.006	.026	-.008	-.224	.822
	Gasoline prices will remain high in the future.	-.037	.027	-.046	- 1.37 5	.169
	Gasoline prices are too high now.	-.026	.047	-.021	-.550	.582
	High gasoline prices will impact what type of autos are purchased.	-.003	.033	-.005	-.106	.916
	Hybrid autos that use alternative fuels will reduce fuel emissions.	.022	.028	.028	.802	.423
	Hybrid autos that use alternative	.067	.030	.089	2.20 9	.027

fuels will keep gas prices down.					
Hybrid autos that use alternative fuels will slow down global warming.	-0.023	.026	-.030	-.861	.390

a. Dependent Variable: Preference: Standard 4 seat hybrid

Table 19.5 – Demographics

Variables Entered/Removed <sup>b</sup>			
Model	Variables Entered	Variables Removed	Method
1	Income level, Size of home town or city, Gender, Marital status, Age, Level of education, Number of people in household <sup>a</sup>		Enter

a. All requested variables entered.

b. Dependent Variable: Preference: Standard 4 seat hybrid

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.688 <sup>a</sup>	.473	.469	1.184

a. Predictors: (Constant), Income level, Size of home town or city, Gender, Marital status, Age , Level of education, Number of people in household

ANOVA <sup>b</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1249.087	7	178.441	127.228	.000 <sup>a</sup>
	Residual	1391.313	992	1.403		
	Total	2640.400	999			

a. Predictors: (Constant), Income level, Size of home town or city, Gender, Marital status, Age , Level of education, Number of people in household

b. Dependent Variable: Preference: Standard 4 seat hybrid

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.472	.253		1.866	.062
	Size of home town or city	-.001	.000	-.405	-17.457	.000
	Gender	.236	.075	.073	3.127	.002
	Marital status	-.175	.102	-.054	-1.720	.086
	Number of people in household	.516	.039	.438	13.288	.000
	Age	.030	.003	.304	11.689	.000

Level of education	.185	.014	.310	12.994	.000
Income level	.004	.001	.079	3.229	.001
a. Dependent Variable: Preference: Standard 4 seat hybrid					