Project Number: 46-REK-0071

E-Commerce Web Sites and Their Effects on Society

An Interactive Qualifying Project Report
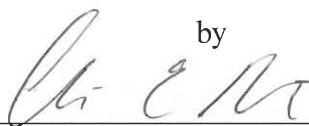
submitted to the Faculty

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by

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Approved:

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Abstract

This project studied the impact of societal attitudes on the design, implementation and quality of electronic commerce Web sites via two electronic surveys. The first survey collected information on general e-commerce attitudes from WPI students and Internet volunteers and the second survey involved the Internet volunteers rating six e-commerce sites. Comparisons were drawn between the public's attitude toward e-commerce sites and professional Web site ratings. The survey results indicate that security, privacy, and brand name are currently the most important aspects of the public's view of e-commerce.

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Introduction and Background
Chapter 1

Electronic commerce is one the fastest growing areas of the Internet today. It affects every day life in many ways: the way people shop, the amount they buy, and the price they pay. Each year the amount of money that is spent on the Internet is increasing and is expected to double over the next year. The convenience of e-commerce is probably the most attractive aspect of it along with the ease of comparison shopping and finding a bargain. E-commerce also has its problems, such as security and the ability of many people to access a computer. This project set out to investigate e-commerce web sites: in particular how society affects their design, implementation and quality. The project drew comparisons between the public's attitude toward each site and previous attitudes about the sites. Finally the project makes some generalizations about e-commerce and how societal changes have affected it.

The goals described above were obtained through two surveys. The first survey was interactive and required each person from a group of volunteers to visit a sampling of e-commerce web sites and evaluate them according to the criteria that were provided. The second survey was a general survey and was meant to obtain the public's attitudes towards e-commerce. The survey was also used to make some conclusions about e-commerce as it is today.

This Interactive Qualifying Project (IQP) originally consisted of three parts. These parts were a survey given to certain e-commerce companies, an interactive survey with the participants rating certain e-commerce sites, and a general survey with the

participants giving their general feelings and attitudes towards e-commerce. The survey that was to be distributed to a few select e-commerce companies was dropped due to lack of response. The remaining two surveys do not only give views on e-commerce. The interactive survey was designed to find out the aspects of a site that make it appealing to the consumer and what will make them want to come back to a specific site to buy or perhaps just occasionally window shop.

In order to accomplish this, six e-commerce sites were chosen for volunteers to rate. The sites were chosen for two reasons. The first being the variety in the products they offer and the second being their varying ratings from current e-commerce rating sites, Gomez.com [3], Ratingwonders.com [5], and Resellerratings.com [6]. As a result, six sites were picked: two with poor ratings (sportsdepot.com [8] and shop4.com [7]), two with mediocre ratings (gap.com [2] and wal-mart.com [9]), and two with excellent ratings (outpost.com [4] and buy.com [1]).

The first part of this study involved going to the three rating sites and studying the evaluations of the six e-commerce sites that have been chosen. Each of the six businesses was then contacted in the form of an email survey to obtain their feelings on the current state of e-commerce, their feelings on how e-commerce is affecting the consumer, and their feelings on what works and what doesn't when it comes to the layout of their page. Unfortunately, as stated above, no response was received from this survey. Concluded reasons for this include the fact that they may have been too busy or they do not like to give out their views on e-commerce for fear of giving the competition the edge.

Next, the other two surveys were conducted, an interactive survey and a general survey. These surveys mostly had questions that could be answered quantitatively to simplify the analysis of the survey. The interactive survey involved the six electronic commerce sites mentioned previously. It required its participants to go to each site and evaluate them by the criteria that were provided. The population of the interactive survey came from 30 people, ages ranging from 18-60, who were random volunteers that were obtained through online communication. Some of these people are colleagues, but the majority are simply volunteers who have agreed to help. The second survey is a more general survey to obtain attitudes about e-commerce. For this survey, email was sent to the 30 people from the first survey and 40 randomly selected WPI students from each undergraduate class. The general survey was sent to WPI students on January 26, 2000 and resent a week later. The Interactive survey was sent to the 30 volunteers on February 2, 2000. Finally the general survey was sent to the 22 people who responded to the interactive survey on February 9, 2000.

After collecting all of the results, the data was analyzed with several standard methods. Data was grouped using a spreadsheet to see where the majority of the answers lie. Results were compared to the three e-commerce rating sites listed above to see if the opinions concur. Graphs and charts were made in order to show where the consumer opinion lies with relation to different aspects of these sites. The results were very often what anyone would expect, but there were a few surprises too. The next two chapters will analyze each of the surveys, first the general survey, and then the interactive survey. The last chapter draws some overall conclusions about the project.

General Survey
Chapter 2

2.1 Explanation of Survey

The general survey (GS) was designed to obtain general attitudes towards e-commerce. It was sent as email to 160 randomly selected WPI undergraduate students, 40 from each class. It was also emailed to the respondents from the interactive survey, an additional 22 people of varying ages. The survey included two demographic questions to help analyze the results and ten questions on electronic commerce. The goal of this survey was to find out if there were any current trends in students' attitudes towards shopping on the Internet. The response to this survey was very good for the undergraduate WPI students. Fifty-four responses were received, 19 female and 35 male, giving approximately a 33% response rate. Each of the ten questions was developed to find out the students' feelings on e-commerce, its strengths and its weaknesses. A complete copy of the survey can be found in Appendix A1. In section 2.2 there is an analysis of the survey question by question.

2.2 Analysis of Student Results

The first question was intended to find out the percentage of students that are actually interested in the Internet and the amount of time they spend using it.

Figure 2.2.1 GS Question 1

How many hours per week do you use the Internet?
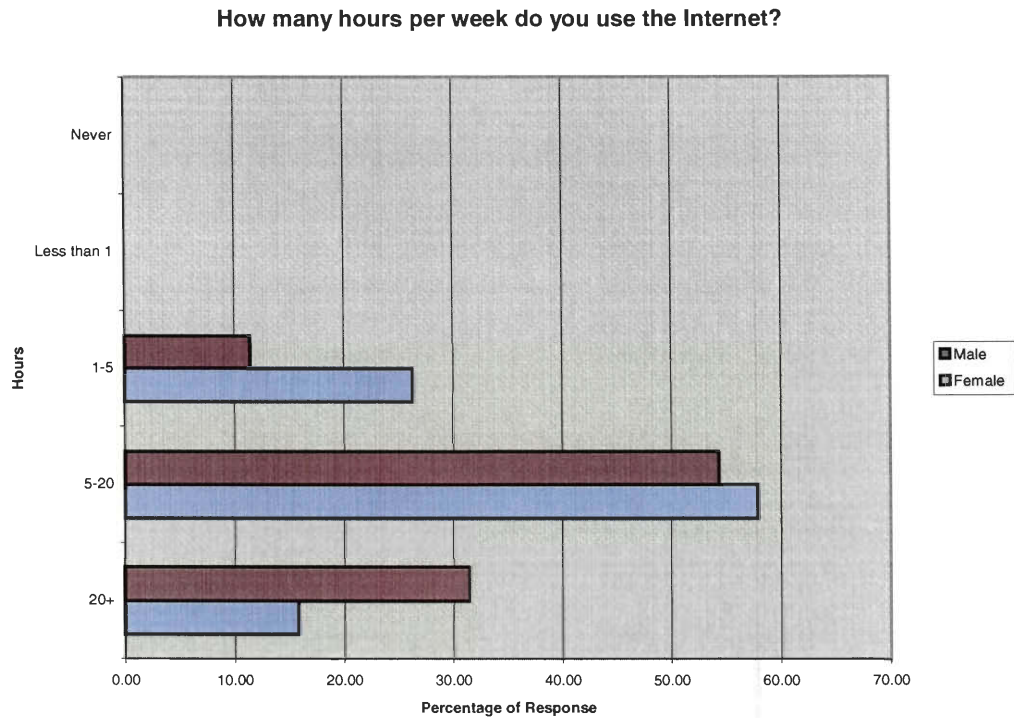
These results in figure 2.2.1 indicate a few general conclusions. First, it seems that most WPI students are interested in and do use the Internet for at least one or two hours per week. This is expected since WPI is a technical institute. Another anticipated result of this survey is that a higher percentage of males use the Internet for 20+ hours per week and a higher percentage of females use it for less time. This question does reassure us that our expectations were correct. It could have benefited from a better selection of the time bins. Everyone who participated in this survey obviously uses the Internet sometimes because the survey was sent through email. Instead of "Less than 1" and

"Never" bins, perhaps it would have been better to have just included "10-15" and "15-20" bins.

The second question was meant to find out the frequency at which students are purchasing things from e-commerce web sites.

Figure 2.2.2 GS Question 2

**How often do you purchase things from online stores?**

The distribution of the results in this question is much better than the last with responses spanning all the bins that were possible. From figure 2.2.2 it can be proposed that a very high percentage of females buy nothing on the Internet. Since females are known for liking the mall and window-shopping, this comes as no surprise. This does not hold true for all the females though as it can be seen there is female representation in 3 of the remaining four bins. Males, on the other hand showed favoritism towards a different bin. Sixty percent of all males surveyed said that they do buy something electronically once every few months. Twenty percent even went as far to say that they bought something

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once a month.   The results in figure 2.2.2 show that people are utilizing the Internet for shopping purposes.

Questions 3 to 5 ask the student how much they agree with a statement.

Figure 2.2.3 GS Question 3

E-commerce has improved commerce as a whole.
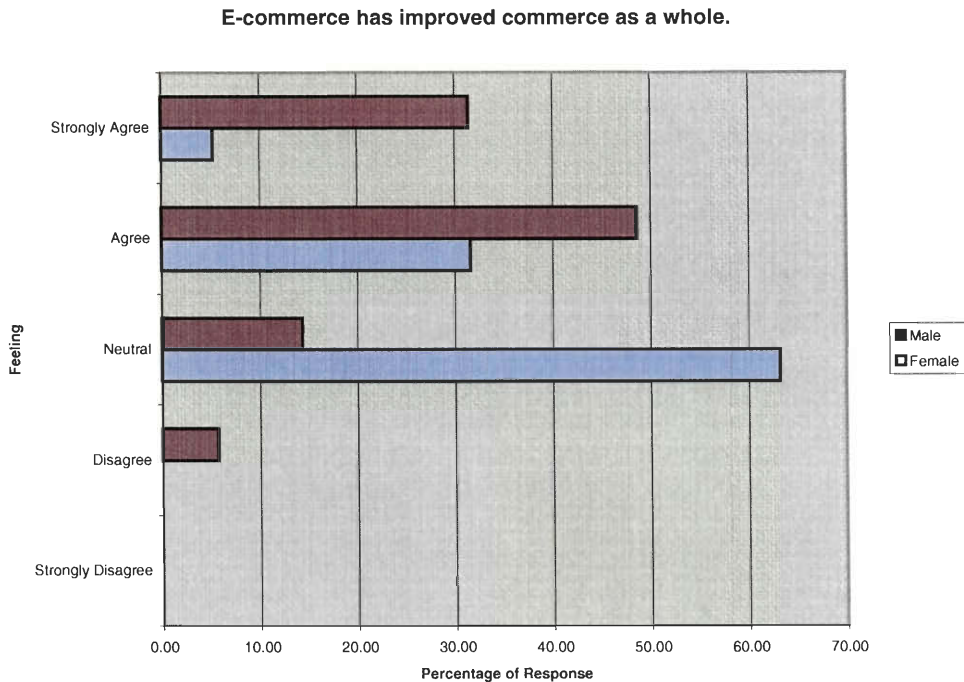
A few interesting points can be made about these results. Not one surveyed strongly disagreed with the statement and only a little over five percent of the males disagreed with the statement. The strong female representation in the neutral category can be attributed to that they do not shop on the Internet very frequently and are therefore less quick to judge. The majority of male responses are in the "agree" and "strongly agree" bins, making up about eighty percent of their total response.

Figure 2.2.4 GS Question 4

E-commerce has made shopping easier.
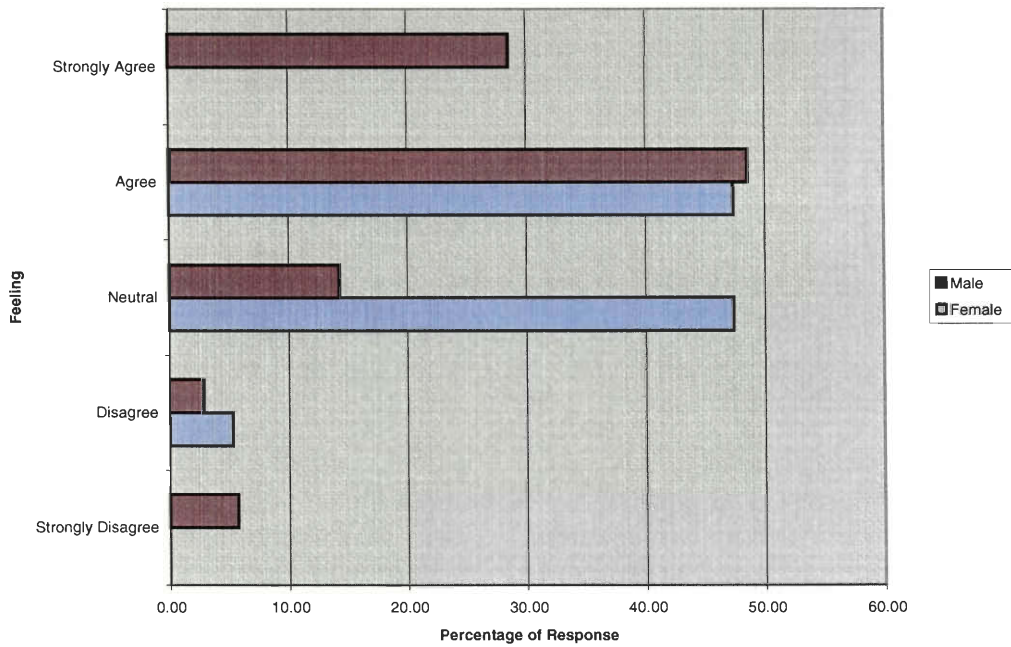
The females are again strong in the neutral category, almost fifty percent, and this can be attributed to the same reasons as above. The females are divided on this question: half of them staying the neutral, the other half agreeing. The females relatively small amount of time spent on the Internet and their neutral responses to the last two questions show perhaps that their neutrality is due to less experience with the Internet. Males basically show the same trends as the last question in that the majority agrees or strongly agrees. Thus far, very few people have disagreed with these statements that give e-commerce a positive outlook. It would be interesting to have seen a similar survey from 10 years ago asking people about shopping on their computer. The next survey question will be the final statement type question.

Figure 2.2.5 GS Question 5

It is cheaper to shop on the Internet.
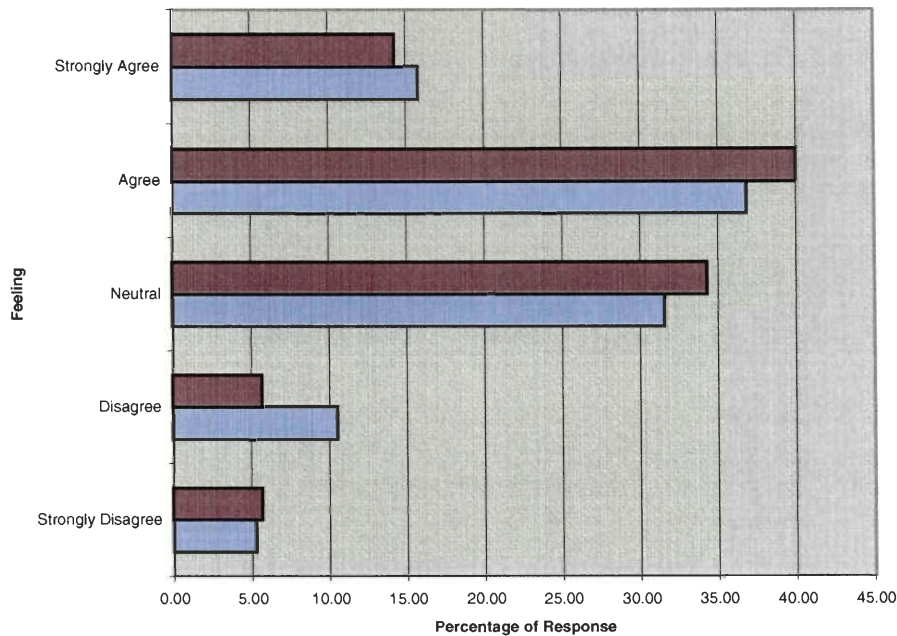
In the responses to question 5, it can be seen that the males have moved their opinion towards the neutral side, but still retaining a majority in agreement. The females on the other hand have less representation in the neutral bin for this question and now have their majority also in "agree" and "strongly agree". This is the one question where the sex of the respondent does not matter. Neither sex is very negative about another positive e-commerce statement. Overall these three statement type questions have shown WPI students view e-commerce favorably.

The next two questions are probably the most important when people ask themselves if they want to buy things from the Internet. Security and privacy are perhaps the most readily discussed issues in e-commerce and the Internet in general.

Figure 2.2.6 GS Question 6

How concerned are you with security on e-commerce sites?
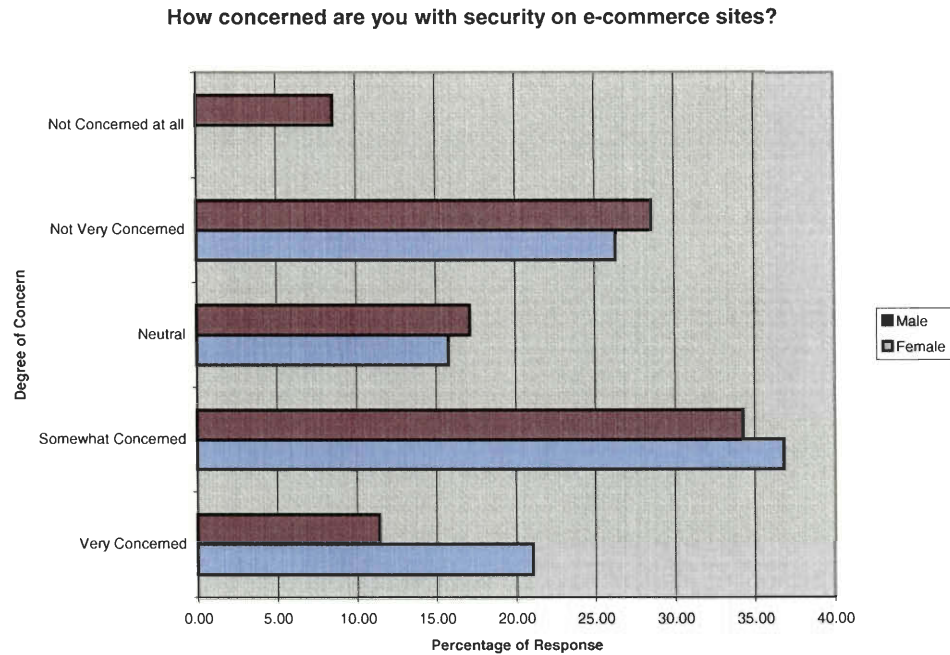
From the results in figure 2.2.6, the majority of both sexes say that they are somewhat concerned with security on e-commerce web sites. This is understood because not all security systems are full proof as shown by recent happenings where people have broken into the systems and stolen thousands of credit card numbers. The percentage of females who were "very concerned" is double that of the percentage of males in the same bin. In fact, the females have no representation in the "not concerned at all" bin. Females are more apprehensive when it comes to security. On the other hand, the next highest bin was "not very concerned." These people would be described as being more care free about their purchases and using credit cards over the Internet. The topic of security brings out much more opinionated answers and less people responding as neutral.

Figure 2.2.7 GS Question 7

How concerned are you with the privacy of personal information on e-commerce sites?
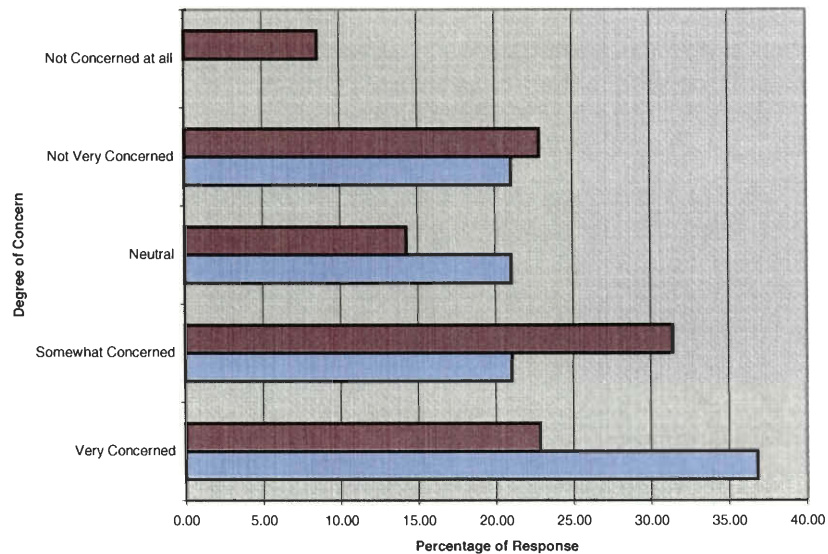

With the question of privacy, the concern grows even higher. In figure 2.2.7, a high percentage of females are in the "very concerned" bin, but the males still stay in the "somewhat concerned" bin. The "not very concerned" bin seems to diminish. Notice one very interesting aspect of this chart and the previous one: A few males expressed no concern at all, while not one female chose this bin. Perhaps this can be attributed to females being more skeptical of electronic commerce and the Internet in general or having a deeper fear of electronic harassment while being online. These last two questions have shown the number one hottest issue in e-commerce. According to these results, the first company who comes up with a totally full proof security system and a privacy guarantee that puts people at ease is going to be more successful than the rest according to these results. In e-commerce perhaps it's not only important to advertise your store but to also advertise just how good your security is.

This brings us to the question of how much shopping people are doing on the Internet that is replacing their normal shopping.

Figure 2.2.8a GS Question 8 (female)

Females: What percentage of your regular shopping has been replaced by shopping on the Internet?

Legend:
- □ 100%
- ■ 75%
- □ 50%
- □ 25%
- ■ 0%
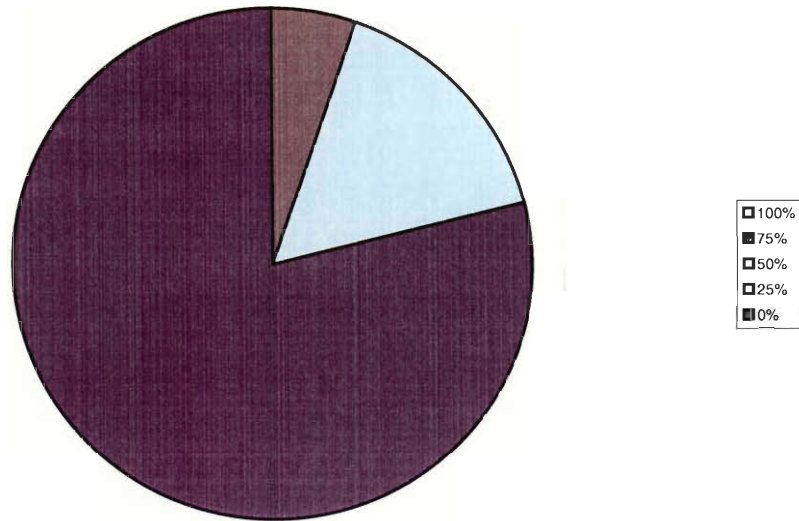
From the female results in figure 2.2.8a it can be seen that an overwhelming majority haven't replaced any normal purchases with shopping on the Internet. The percentage of females who actually have replaced a normal shopping habit with an Internet shopping habit is less than 25%, and of this group, most of them have only replaced 25% of their normal shopping.

Figure 2.2.8b GS Question 8 (male)

**Males: What percentage of your regular shopping has been replaced by
shopping on the Internet?**
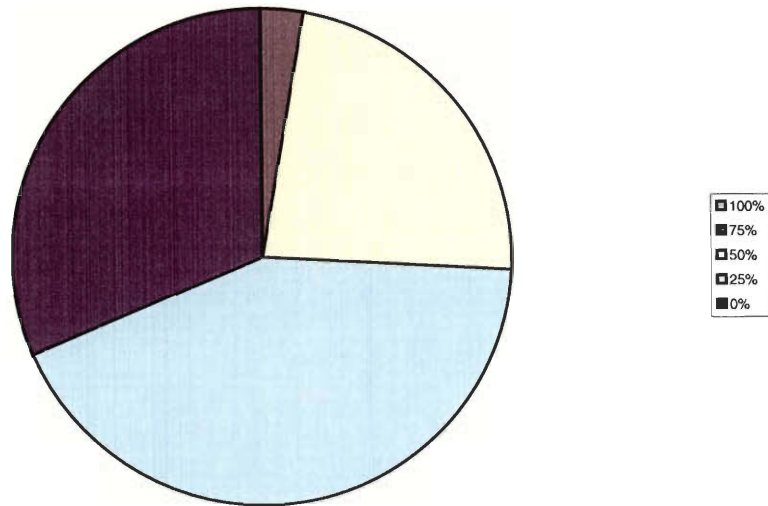
Males on the other hand have their plurality in replacing 25% of their normal shopping.
A fair amount of them even say 50%. The percentage of males who have replaced
absolutely nothing is much smaller here, about 30%. For question 8, one male and one
female each admitted to replacement of 75% of their normal shopping. The important
result from figures 2.2.8a and b is that people are starting to replace their regular
shopping with e-commerce and that men are twice as likely to do so.

Question number nine allowed the student to give more than one answer about which aspects of e-commerce they liked.   Here is the exact question from the survey:

9)   What parts of e-commerce do you like? (Place an X in all boxes that apply)

[   ] Pricing
[   ] Ease of use
[   ] Tax free shopping
[   ] Product Selection
[   ] Convenience
[   ] Other_____
[   ] None

Figure 2.2.9 GS Question 9

What parts of e-commerce do you like?
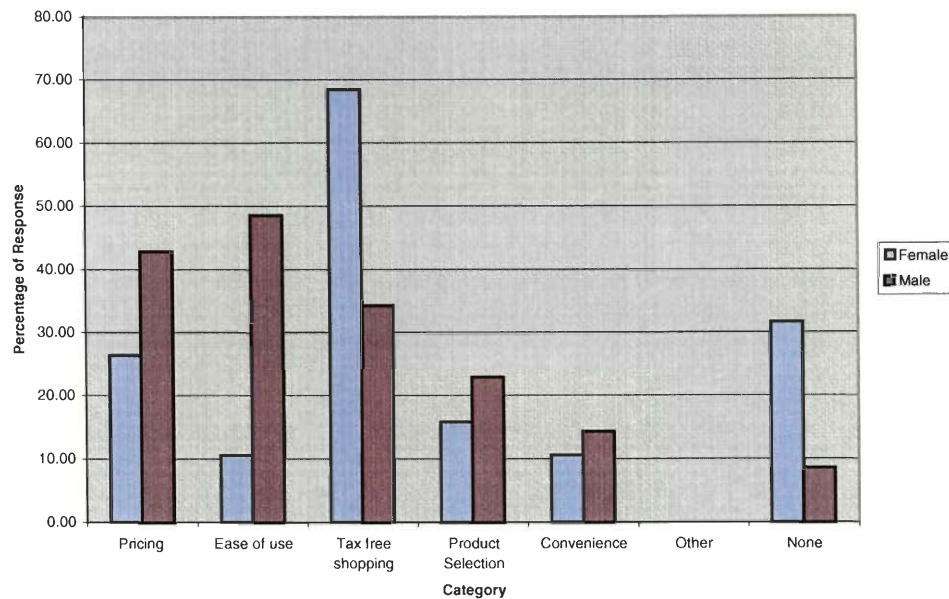
The biggest result of this question, shown by figure 2.2.9, was the very high percentage of females who liked tax-free shopping. The males on the other hand seem to like pricing, ease of use, and tax-free shopping the most. One other result was that triple the percentage of females liked nothing about e-commerce than the males. Note that no one took the time to fill out the "other" category.

The final question is very hard to chart or graph so the results will just be given in this paragraph. The question was:

10) If you don't shop on the Internet, please rank the following improvements, in order of importance from 1-5, as to which would increase your likelihood of shopping on the Internet.

[   ] Cheaper Prices
[   ] More secure transactions
[   ] Guarantees of privacy
[   ] Better Product Selection
[   ] Easier way to access the Internet

The most interesting results of this question were the improvements that ranked highest and lowest. The improvements that were ranked number one the most were "More secure transactions" and "Guarantees of privacy" with percentages being 46.3% and 35.2% respectively. This re-enforces the results in questions 6 and 7 with the very strong concern about these two issues. The choice that was ranked as least important the most was "Easier way to access the Internet." This shows us that the Internet is already easy to access from WPI.

2.3 Analysis of Volunteer Results

The twenty-two volunteers who participated in the interactive survey also each completed a general survey. In this section, instead of going through each question individually, the more interesting results will be presented and analyzed.

One of the most interesting points to be made in this section deals with security and privacy. In figures 2.2.6 and 2.2.7 it was shown that there was a very high concern for these issues. In figure 2.3.1 below it can be seen that the concern for security among older aged participants has grown even more.

Figure 2.3.1: GS Question 6

Males and Females aged 26-40, 41-50, and 50+
How concerned are you with security on e-commerce sites?
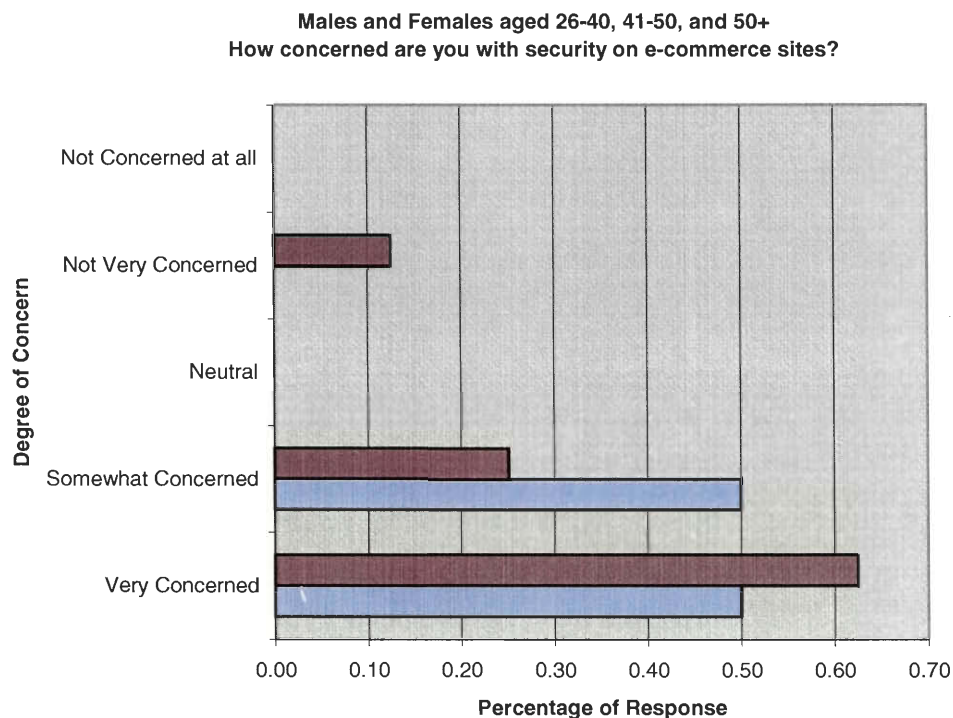
The degree of concern has increased greatly. In the WPI student survey, both male and female percentages in the "very concerned" bin were below 25%. Among the older participants in figure 2.3.1, 50% of females and 63% of males are "very concerned".

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These percentages have more than doubled from the random student participants. This increase in concern is most likely because younger participants are new consumers and are more likely to be "informed" of new technologies, while older consumers implies more conservative values. In figure 2.3.2 below the younger volunteer participants have results more akin to those of WPI students.

Figure 2.3.2: GS Question 6

Males and Females aged 18-25
How concerned are you with security on e-commerce sites?
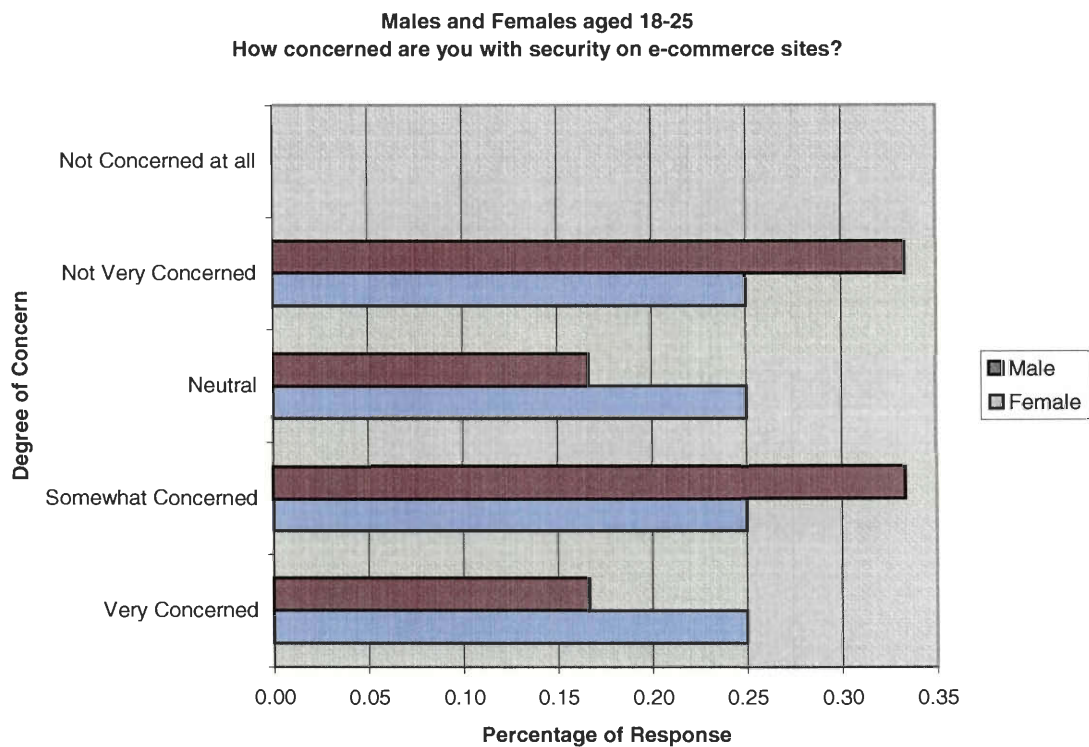
These results are more like those of figure 2.2.6 in which there was concern, but there were also some people who weren't very concerned. As said above, the younger participants have a bias in that they grew up with computers and the Internet, therefore trusting them and taking more risks. The same can be said for the privacy issue as shown by figures 2.3.3 and 2.3.4 on the following page. They are much the same as the security question between ages.

Figure 2.3.3: GS Question 7

Males and Females aged 26-40, 41-50, and 50+
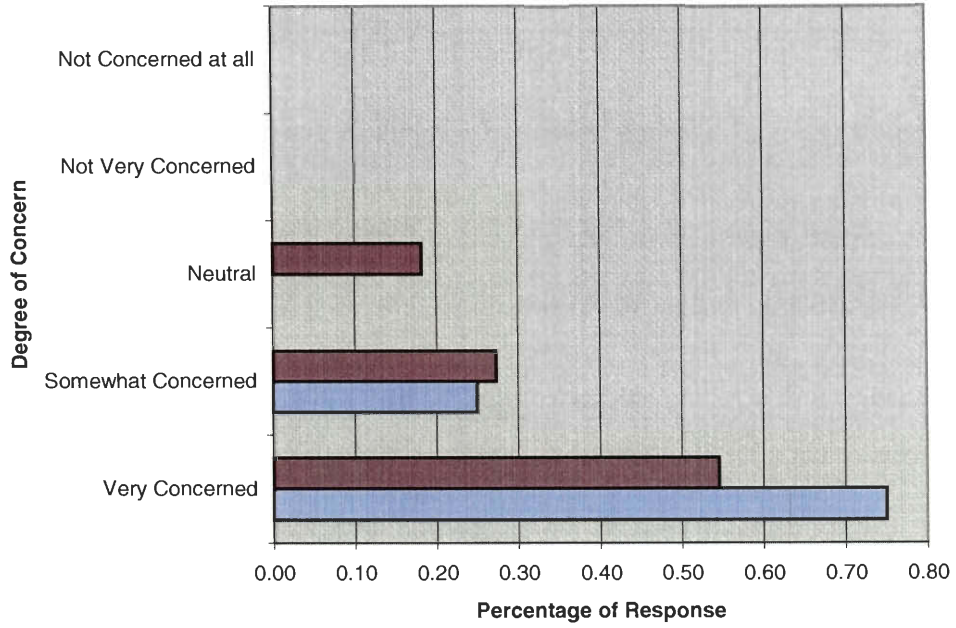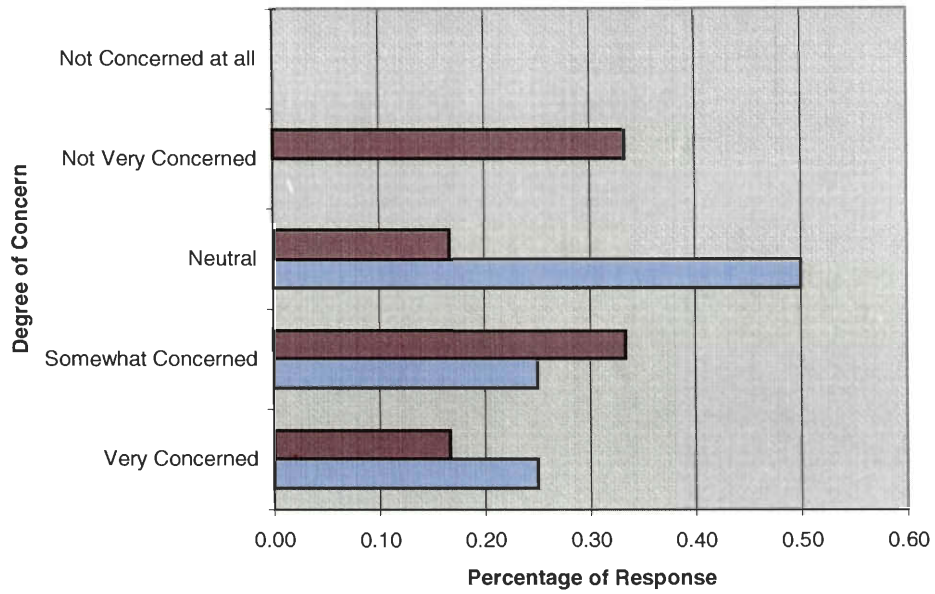**How concerned are you with privacy on e-commerce sites?**

Figure 2.3.4: GS Question 7

Males and Females aged 18-25
How concerned are you with privacy on e-commerce sites?

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Overall the concern for security and privacy is high among all ages in this survey.

Looking at question 10 again:

10) **If you don't shop on the Internet, please rank the following improvements, in order of importance from 1-5, as to which would increase your likelihood of shopping on the Internet.**

[ ] Cheaper Prices
[ ] More secure transactions
[ ] Guarantees of privacy
[ ] Better Product Selection
[ ] Easier way to access the Internet

The two bins with the highest percentages of being chosen were once again "More Secure Transactions" and "Guarantees of Privacy". Forty-five percent of the volunteers surveyed chose security as the most important and thirty-six percent chose privacy.

There was one other question from this survey that showed some interesting results, question 8.

Figure 2.3.5a: GS Question 8 (females)

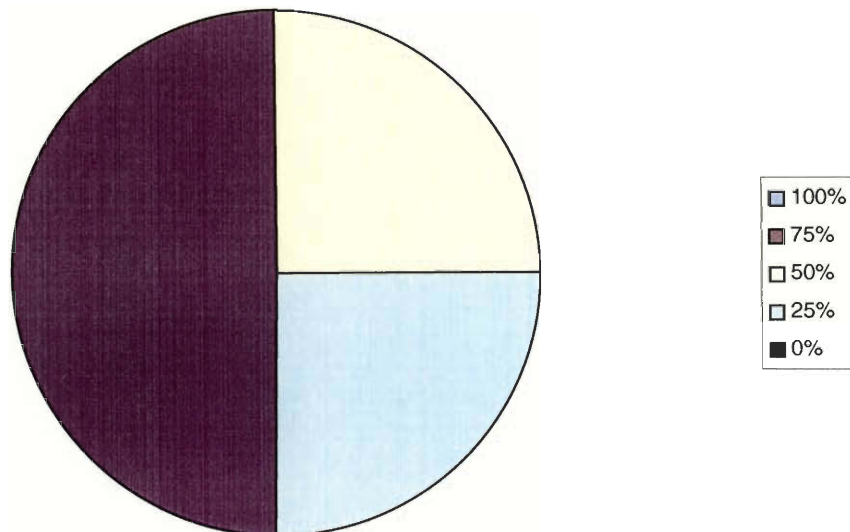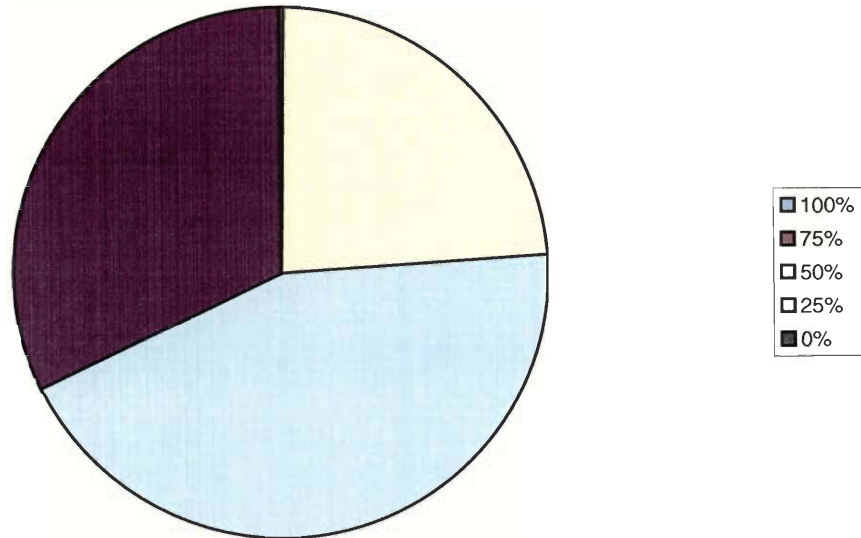Females: What percentage of your regular shopping has been replaced by shopping on the Internet?

□ 100%
■ 75%
□ 50%
□ 25%
■ 0%

Figure 2.3.5b: GS Question 8 (males)

Males: What percentage of your regular shopping has been replaced by shopping on the Internet?

- ☐ 100%
- ■ 75%
- ☐ 50%
- ☐ 25%
- ■ 0%

From figure 2.3.5a and 2.3.5b, the percentages of people who have replaced normal shopping habits with Internet shopping have increased from the WPI students who were surveyed. Over 75% of the female WPI students said they had replaced 0% of their shopping, and now within this 22 volunteer group, that percentage has decreased to 50%. Male results have remained about the same, except for the fact that no one chose anything above 50%. The percentage increase in females is very interesting. It could be attributed to that these volunteers were found through online chat. That being so, they probably are more trusting of the Internet than most. Also, with most of these volunteers being older aged, they most likely have real 40 hour per week jobs. This takes a lot of time away from their lives and having the convenience of shopping on the Internet becomes a saving grace for them

Overall, this survey was a success. There were a few questions that seemed not to tell much, but rather confirmed past expectations. There were a few questions that gave very interesting results. The confirmation that security and privacy are two of the most important issues in e-commerce, with both younger and older populations, is very interesting. This was also the only result of the survey where both sexes agreed. The outlook on e-commerce, other than these two issues, is a positive one.

Interactive Survey
Chapter 3

3.1 Explanation of Survey

The interactive survey (IS) was intended to obtain ratings of different e-commerce web sites.   The results of the survey were then compared to already available ratings from three different web sites: gomez.com, resellerratings.com, and ratingwonders.com. Using these three sites, six e-commerce sites were chosen to be rated: two that had low ratings, two that had mediocre ratings, and two that had high ratings. They are grouped as follows:

Low Ratings - Shop4.com and Sportdepot.com
Mediocre Ratings - Gap.com and Wal-mart.com
High Ratings - Buy.com and Outpost.com

The sites were evaluated with ten categories. These ten categories are based on ranking criteria provided by ratingwonders.com and gomez.com. Each of the following categories was to be ranked from 1-10, with 10 being the highest

Range of collection
Does this web site's range of products seem adequate for the consumers they are trying to target?

Images
Does the web site have adequate images for its products so that the consumer can clearly see what he/she is buying?

Product Description
Do the product descriptions give the consumer adequate information about the products?

Spelling/Grammar
Does the web site seem to be free of spelling/grammar mistakes?

Clarity/Readability
Is the web site easy to understand from a text point of view?

Color and Graphics
Is the web site aesthetically attractive, easy on the eyes, etc.?

Navigation
Is it easy to find information about a product you are interested in?

Shopping cart
Do you find the shopping cart system accommodating and easy to use?

Security
How secure does the purchasing system seem to be, if at all?

Privacy Policy
Does the web site's privacy policy satisfy you, if there is one at all?

The IS was distributed to thirty volunteers, some of whom are my colleagues, but most are just random people who volunteered through Internet chat. The response to the survey was quite good, 22 out of the original 30 volunteers responded. The age distribution of the respondents is as follows:

Gender	Age 18-25	Age 26-40	Age 41-50	Age 50+	Total
Male	6	3	3	2	14
Female	4	3	1	0	8

An actual copy of the entire survey can be found in appendix A2.

3.2 Analysis of Survey

In order to analyze the results from each of the six e-commerce web sites, the data was grouped by sex and then by age. For each sex/age combination, the data was averaged and then placed on a graph.

3.2.1 Buy.com
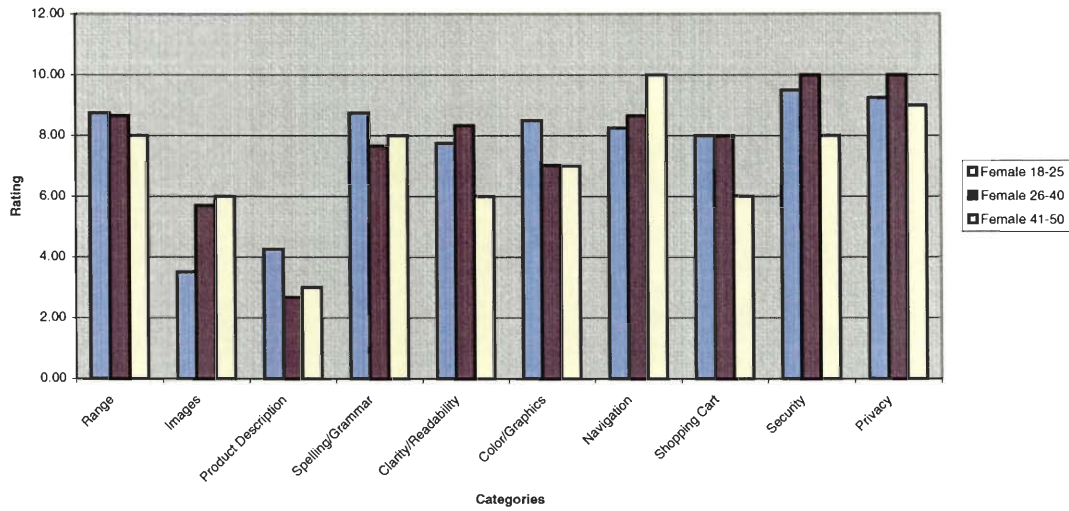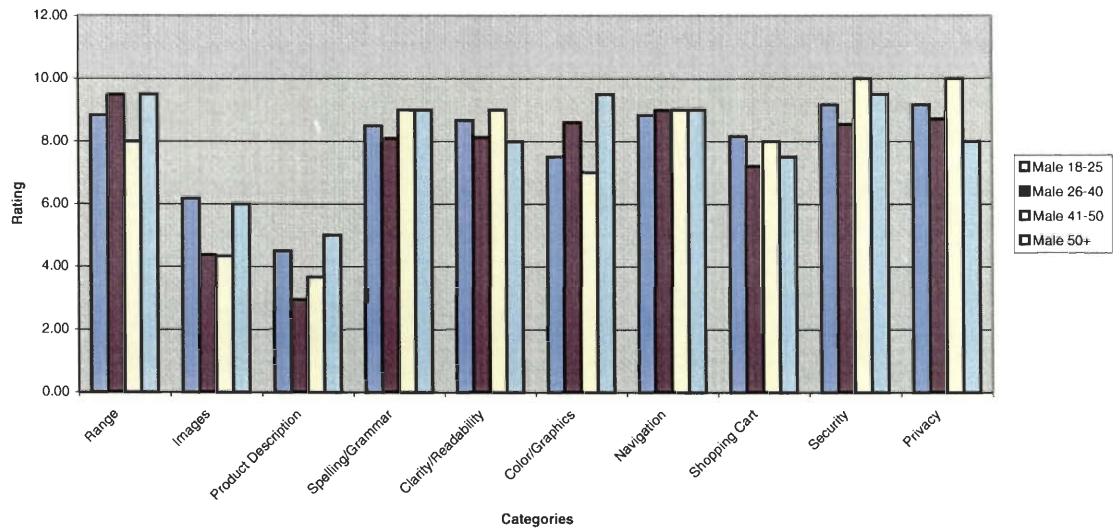
Figure 3.2.1a: Buy.com Ratings (female)

Figure 3.2.1b: Buy.com Ratings (male)

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Buy.com is one of the highest rated stores at the three reference web sites. From figure 3.1a and b, this holds true for all but two categories, images and product description. Both male and female participants of all ages found Buy.com's images and product descriptions inadequate. Upon visiting the site this is very understandable. A high percentage of products at this store have no image available or have a very small image. In the case of the computer section of the store, product descriptions are made of mostly abbreviated technical terms that the common shopper wouldn't know. The small images could be a result of Buy.com wanting to keep their web server operating at a fast speed. Another interesting part of the two charts is that with the exception of the two categories mentioned above, the navigation category for both sexes, and the range section for the males, the older participants seem to consistently rate each category lower. It will be interesting to see if this holds true for the rest of the stores.

3.2.2 Outpost.com

Outpost.com is one of the highest rated e-commerce web sites around today. US NEWS recently awarded it "Best E-commerce Web Site." The results for Outpost.com are given in figure 3.2.2.

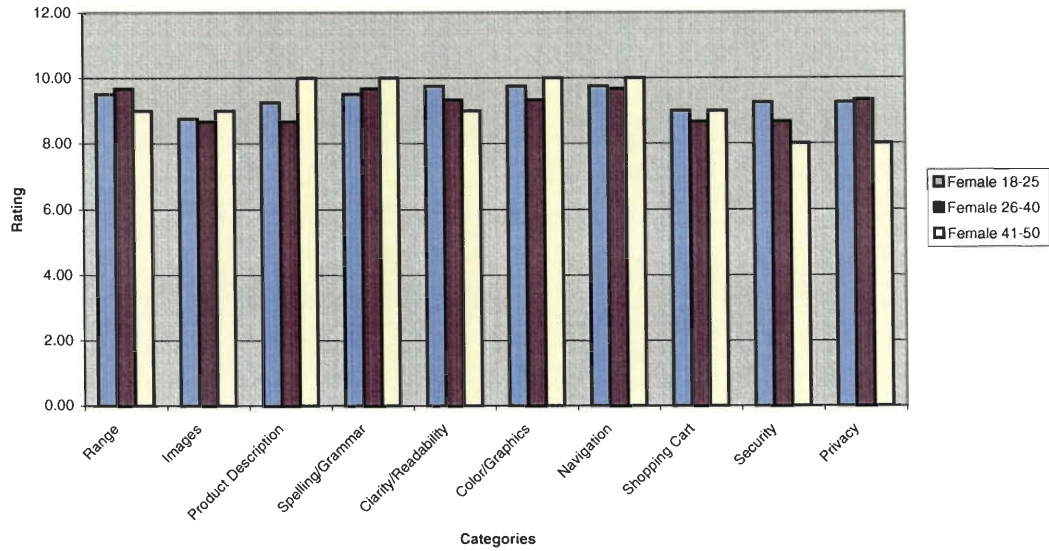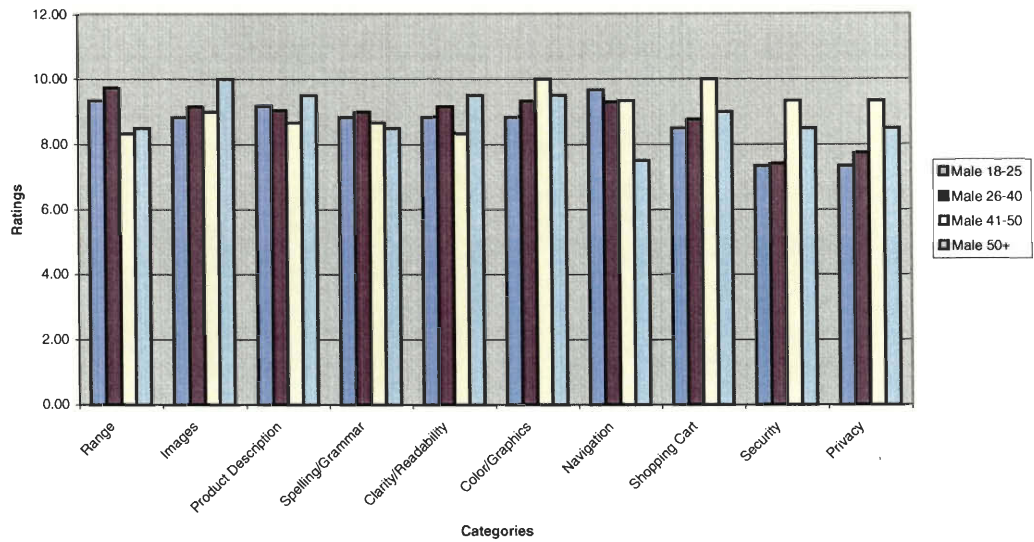**Figure 3.2.2a: Outpost.com Ratings (female)**

Figure 3.2.2b: Outpost.com Ratings (male)

There are really no surprises in figures 3.2.2a and 3.2.2b. Both males and females rated this site very highly. This might be attributed to the web sites instant "professional" look and very well organized structure. The only categories that seem to suffer are privacy and security, and this is from younger males. This could be attributed to that

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younger males, perhaps being more Internet savvy saw through some of the policies and rated them lower. This completes the analysis of the two highest rated stores in the survey.

3.2.3 Gap.com

Figure 3.2.3a: Gap.com Ratings (female)
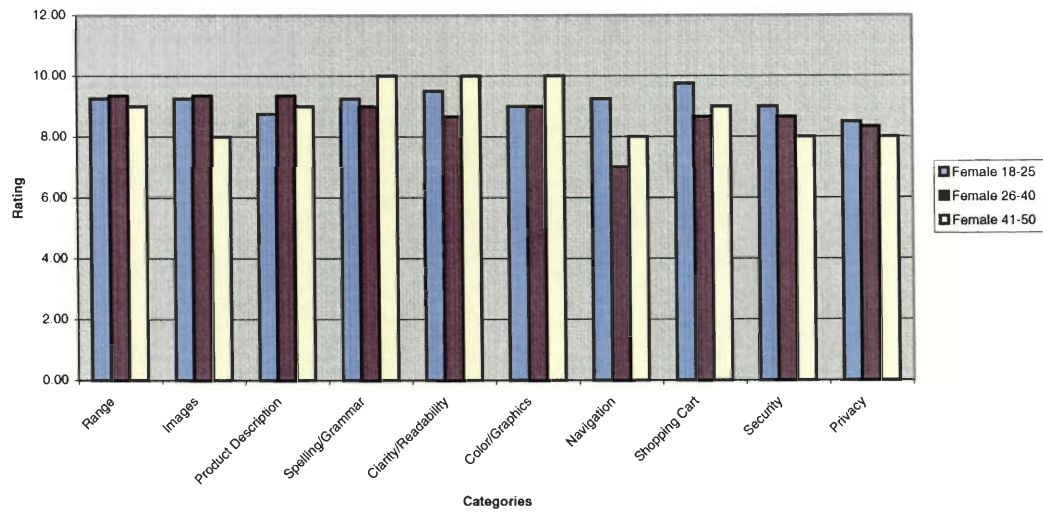
Figure 3.2.3b: Gap.com Ratings (male)

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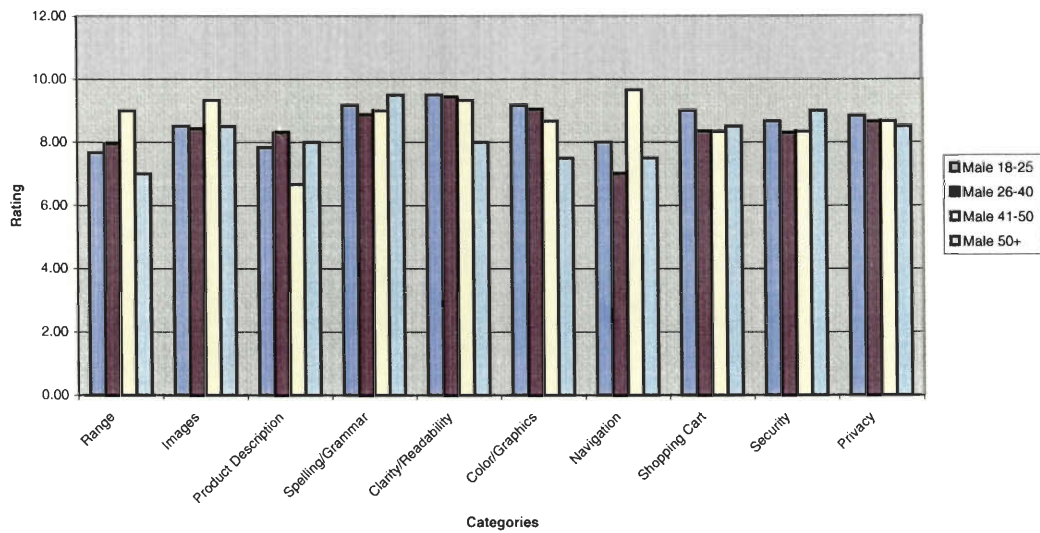
The Gap's online presence gives us some interesting results in figure 3.2.3a and 3.23b on the previous page.

The females, in figure 3.2.3a have rated Gap.com very highly. This store only received average ratings from the three reference sites, but the female volunteers in this survey seem to think otherwise. This could be attributed to its brand name. Perhaps that is why a store like Buy.com who has received very high praise from the Internet community does not receive the same from the volunteers in our survey. Brand name is an important thing and it surely creates a bias in the minds of some. The two categories that seem to suffer the most in the female results are privacy and security. From the previous chapter on the general survey, this is perfectly understandable. Lets look at the males now.

The ratings from the males in figure 3.2.3b, while not as high in all instances as the females, are still relatively high. Some of the older males seem to be harsher with gap.com, but then again this is probably not a store that they would be shopping in. In the navigation category, the males age 41-50 seem to have broken away from the pack and rated it very highly. This is interesting, but there is really no explanation for it. A better representation could have been obtained if more people had participated in the survey.

Wal-mart.com, a nationally known brand name, will be examined in the next

section. Wal-mart.com is in the same category as Gap.com, in that it was rated average

by the reference sites.

3.2.4 Wal-mart.com
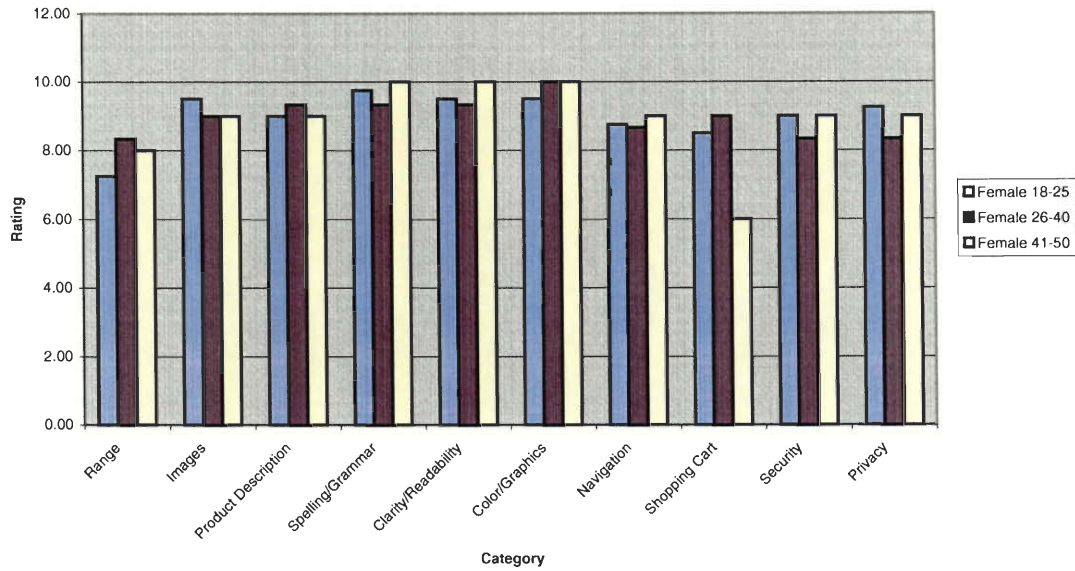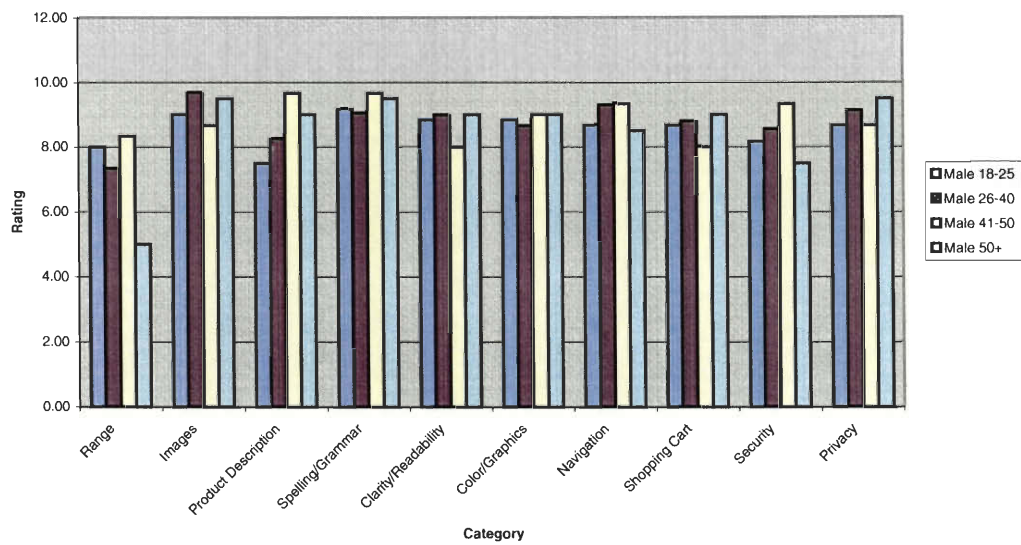
Figure 3.2.4a: Wal-mart.com Ratings (female)


Figure 3.2.4b: Walmart.com Ratings (male)

The females in figure 3.2.4a have rated Wal-mart.com very highly. Range of collection seems to be a bit lower than the other categories. Perhaps this is because the online Wal-Mart store has much less than today's Super Wal-Mart's with grocery stores, hairdressers, photo shops, and thousands of products. Also, the one older female in the 41-50 year old group has rated the shopping cart system poorly.

Similar to the females, the males in figure 3.2.4b have range of collection rated the lowest of all the categories. Once again, this is probably because the online store pales in comparison to a real Wal-Mart in the amount it offers. Consumers most likely go to Wal-mart.com expecting to have all the commodities of a regular Wal-Mart.

3.2.5 Shop4.com

Shop4.com is an "everything" store. It is the first of two stores chosen for this survey because of their poor ratings.

Figure 3.2.5a: Shop4.com Ratings (female)
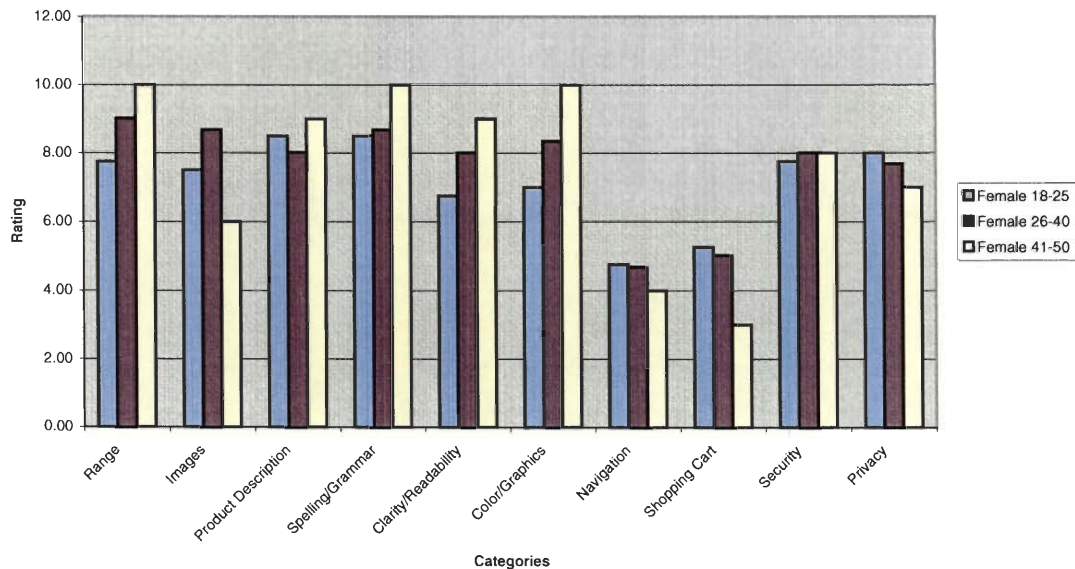
Surprising, the females rated shop4.com highly in all categories except navigation, shopping cart, security, and privacy. Navigation and shopping cart got rated the harshest as shown by figure 3.2.5a. The rating system for this survey could have been better if the volunteers were asked to give an overall rating of the store or if a formula had been developed, weighing which categories were more important than others, to come up with a final rating. Relative to the previously discussed web sites, shop4.com does have much lower ratings.

Figure 3.2.5b: Shop4.com Ratings (male)
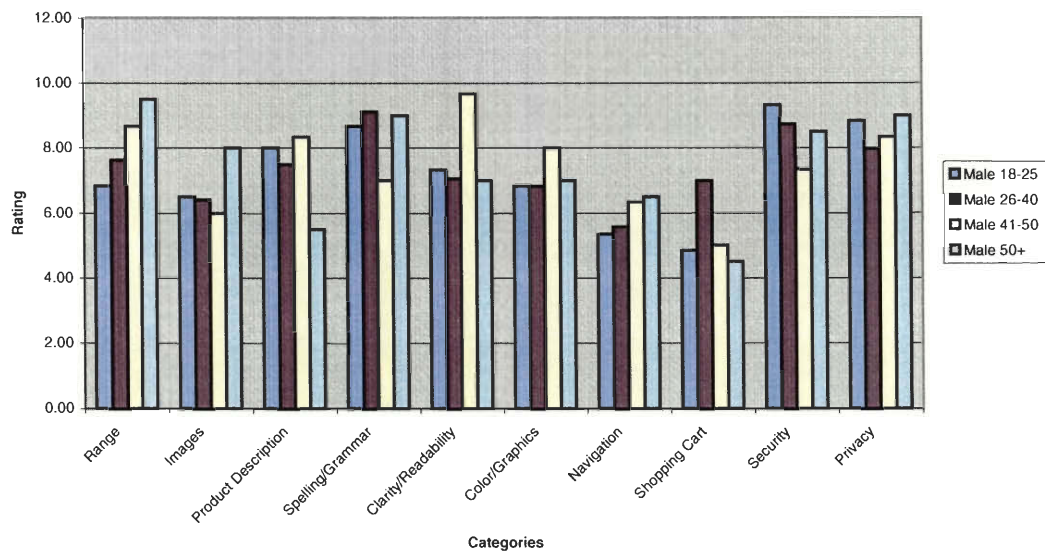
The males seem to be very critical, as the females were, in the areas of navigation and shopping cart, but they are also much more critical in other areas than the females as demonstrated by figure 3.2.5b. The reason for this is probably that males spend more time on the Internet, as shown by the general survey, and can more easily see the flaws of a web site, because their comparison set and expectations are higher. The next store evaluated, sportsdepot.com shows results that are in much more of an agreement with the opinions of Gomez.com and Ratingwonders.com.

3.2.6 Sportsdepot.com

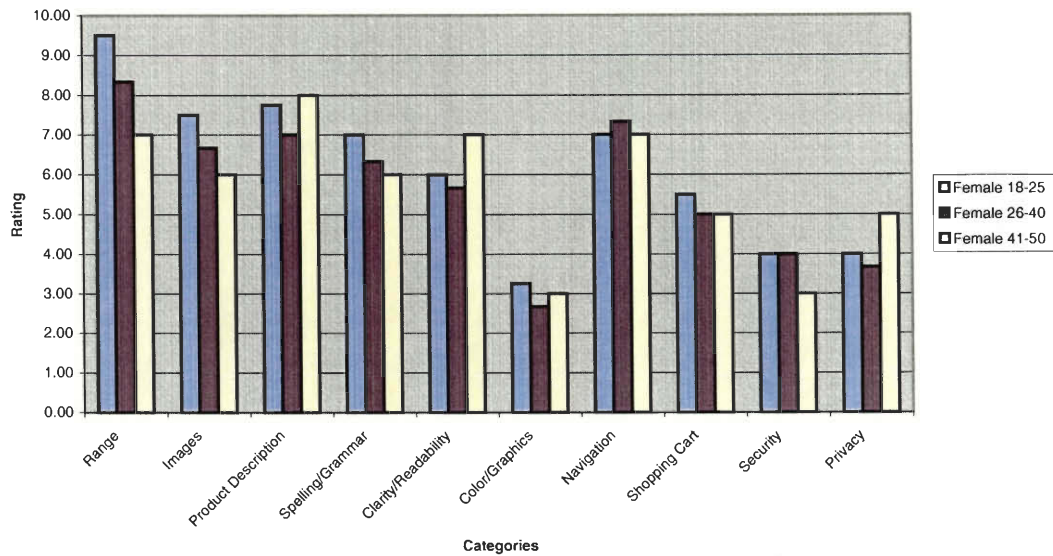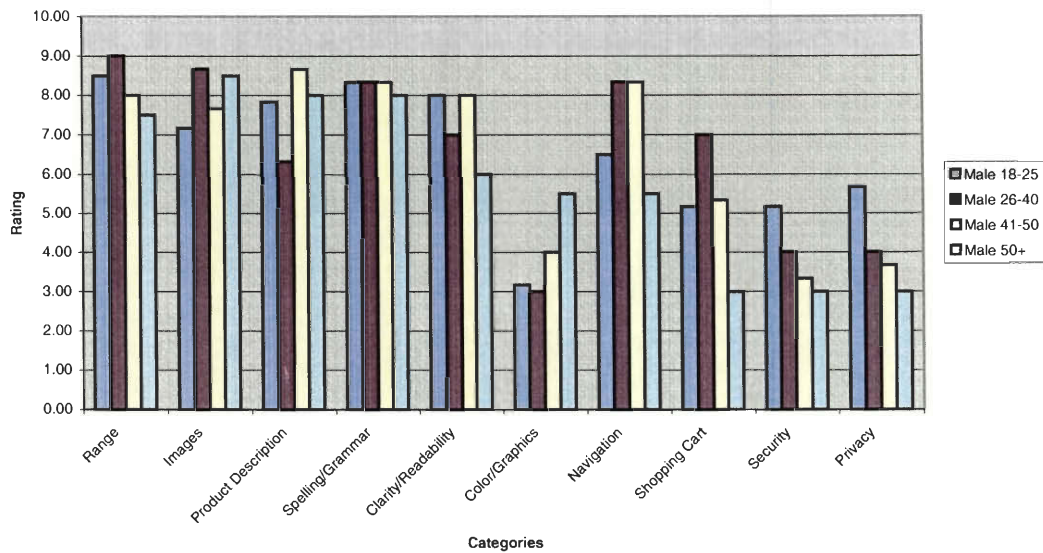**Figure 3.2.6a: Sportsdepot.com Ratings (female)**

**Figure 3.2.6b: Sportsdepot.com Ratings (male)**

Sportsdepot.com seems to have been rated even lower than shop4.com. The area of Color/Graphics is especially low in both figure 3.2.6a and 3.2.6b. This can be attributed to the fact that this site is not as flashy as some of the previously analyzed sites.

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Security and privacy were also rated very low. This can be attributed to the fact that the site was not aesthetically pleasing to either sex and they probably do not feel like they are in a comfortable, secure environment. As for range of collection and product description, these are two of the highest rated areas, more so by the males than the females. This is most likely because sports in general are still aimed more at males than females.

The following chart, figure 3.2.7, is an overall rating chart for all stores. This was created by first averaging each category (product description, navigation etc.), and then averaging all of those values together for each online store.

Figure: 3.2.7: Overall Ratings
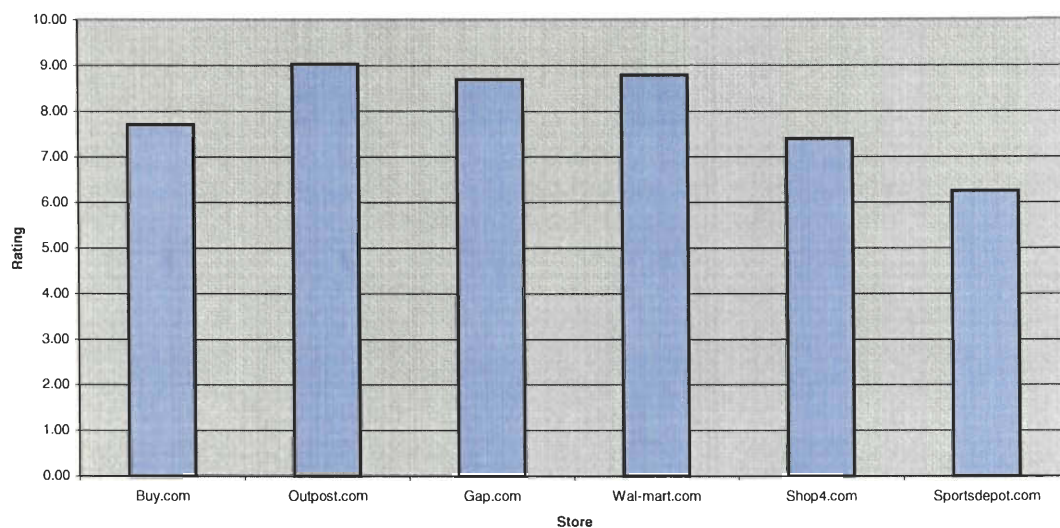
The results of the Interactive Survey have produced a few interesting points. Perhaps the most surprising aspect is that the volunteers in our survey look upon e-commerce sites that were rated as being very poor by gomez.com, ratingwonders.com, and resellerratings.com, with a much less harsh eye. This can be attributed to the sample space of this survey being different than any of the reference rating sites. Gomez.com, for example, has employees that look at thousands of other sites and have a much wider

base to compare. The volunteers on the other hand have a natural bias to familiarity in brand name and stores they visit regularly like Wal-Mart and The Gap. The volunteers were never made aware of these reference-rating sites, as this information may have affected their opinion. The Interactive survey shows, as did the general survey, that the public's outlook on e-commerce and e-commerce web sites is very positive.

Conclusions and Future Recommendations
Chapter 4

The public's perception of e-commerce is very positive and the two surveys in this project are consistent with the accepted perception. There are basically three important topics that have evolved from this IQP and they can be summarized in three words: brand name, privacy, and security. From the results in this project, these three things are the most important aspects of e-commerce for it to succeed. Privacy and Security are two things which most of the participants worry about when shopping online. In fact, these were two of the only issues of this project in which both males and females agreed. "Will my credit card number get stolen?" "Will I be getting calls from tons of telemarketers because my private info was given out?" These are the questions that they are probably asking themselves when shopping on the Internet. Although they are worried about these two issues, nothing is stopping anyone from seeing the promise in e-commerce and starting to purchase some things from online stores. The younger crowd is quicker to purchase something online, but that is understandable since most of them have grown up with computers. Outside of security and privacy, gender does matter greatly when it comes to e-commerce. Male participants of this survey use the Internet more and shop online more than the female participants.

The other issue that was most evident in analyzing the data from this IQP was that brand name caused a serious bias among the survey populations. Gap.com and Wal-Mart.com, which were mediocre level sites as rated by the ratings experts, have very high ratings. They are almost as high as the top rated site, Outpost.com. This is evidence that when people see a brand name they like, it will most likely sway their opinion.

In future projects on e-commerce there are a few things that should be taken under consideration. First, the survey bins should be chosen very carefully because a good distribution of results gives much more to analyze. Another recommendation is to gather a much wider base of older aged people to compare with younger opinions. Also, the addition of a "speed of site" category to the interactive survey would have helped. A final suggestion would be to come up with a system for rating the e-commerce sites other than just averaging the results. This would include having some of the categories such as "navigation" weigh heavier than others in the overall rating.

Overall, the IQP was a success. It has shown that people, both young and old have a good outlook on shopping online. While there are concerns, they don't greatly hinder opinions on the state of electronic commerce. It will be interesting to see whether or not security and privacy become less of an issue over time, and who will become the new "big brand names" online.

Appendix

A1: Copy of General Survey

E-Commerce General Survey

You have been randomly selected to receive this survey. I am doing an Interactive Qualifying Project at Worcester Polytechnic Institute on e-commerce web sites and would appreciate your time in filling out this survey. Please return it within 3 days to ctishue@wpi.edu. Place an X in the box next to the answer the best answer for you:

Before starting the survey, please answer these two demographic questions. All personal information and email addresses will be kept confidential.
1) Are you a male [ ]   or   female   [ ]
2) What is your age? (enter in the box) [   ]

1) **I use the Internet:**

[ ] Never
[ ] Less than an hour/week
[ ] 1-5 hours/week
[ ] 5-20 hours/week
[ ] Greater than 20 hours/week

2) **I purchase things from online stores:**

[ ] Never
[ ] Once a week
[ ] Once a month
[ ] Once every few months
[ ] Once a year

For numbers 3-5 please rate how much you agree with each statement by placing an X in the appropriate box.

3) **E-commerce has improved commerce as a whole.**

[ ] Strongly Disagree
[ ] Disagree
[ ] Neutral
[ ] Agree
[ ] Strongly Agree

4) **E-commerce has made shopping easier.**

[ ] Strongly Disagree
[ ] Disagree
[ ] Neutral
[ ] Agree
[ ] Strongly Agree

5) **It is cheaper to shop on the Internet.**

[ ] Strongly Disagree
[ ] Disagree
[ ] Neutral
[ ] Agree
[ ] Strongly Agree

6) **How concerned are you with security on e-commerce sites?**

[ ] Very Concerned
[ ] Somewhat Concerned
[ ] Neutral
[ ] Not very concerned
[ ] Not concerned at all

7) **How concerned are you with privacy of personal information on e-commerce sites?**

[ ] Very Concerned
[ ] Somewhat Concerned
[ ] Neutral
[ ] Not very concerned
[ ] Not concerned at all

8) **In the past year, how much of your regular shopping has been replaced by shopping on the Internet.**

[ ] 100%
[ ] 75%
[ ] 50%
[ ] 25%
[ ] 0%

9) **What parts of e-commerce do you like? (Place an X in all boxes that apply)**

[ ] Pricing
[ ] Ease of use
[ ] Tax free shopping
[ ] Product Selection

[ ] Convenience
[ ] Other_____
[ ] None

10) If you don't shop on the Internet, please rank the following improvements, in order of importance from 1-5, as to which would increase your likelihood of shopping on the Internet.

[ ] Cheaper Prices
[ ] More secure transactions
[ ] Guarantees of privacy
[ ] Better Product Selection
[ ] Easier way to access the Internet

END SURVEY

Thank you for taking the time to fill out this survey. Once again, please return the complete survey to ctishue@wpi.edu within 3 days.

A2: Copy of Interactive Survey

E-Commerce Web Site Evaluation Survey

You have volunteered to receive this survey. I am doing an Interactive Qualifying Project at Worcester Polytechnic Institute on e-commerce web sites and would appreciate your time in filling out this survey. Please return it within one week to ctishue@wpi.edu. Please go to each of the 6 sites and then rank each site based on the following criteria (10 being the best, 1 being the worst) by placing an X in the appropriate box.

Before starting the survey, please answer these two demographic questions. All personal information and email addresses will be kept confidential.

1) Are you a male [　]　or　female　[　]
2) What is your age? (pick range)　18-25 [　]　26-40[　]　41-50[　]　50+[　]

Range of collection
Does this web site's range of products seem adequate for the consumers they are trying to target?

Images
Does the web site have adequate images for its products so that the consumer can clearly see what he/she is buying?

Product Description
Do the product descriptions give the consumer adequate information about the products?

Spelling/Grammar
Does the web site seem to be free of spelling/grammar mistakes?

Clarity/Readability
Is the web site easy to understand from a text point of view?

Color and Graphics
Is the web site aesthetically attractive, easy on the eyes, etc.?

Navigation
Is it easy to find information about a product you are interested in?

Shopping cart

Do you find the shopping cart system accommodating and easy to use?

Security
How secure does the purchasing system seem to be, if at all?

Privacy Policy
Does the web site's privacy policy satisfy you, if there is one at all?

<u>www.buy.com</u>

	1	2	3	4	5	6	7	8	9	10
Range of Collection										
Images										
Product Description										
Spell/Grammar										
Clarity/Readability										
Color and Graphics										
Navigation										
Shopping Cart										
Security										
Privacy Policy										

<u>www.sportsdepot.com</u>

	1	2	3	4	5	6	7	8	9	10
Range of Collection										
Images										
Product Description										
Spell/Grammar										
Clarity/Readability										
Color and Graphics										
Navigation										
Shopping Cart										
Security										
Privacy Policy										

www.wal-mart.com

	1	2	3	4	5	6	7	8	9	10
Range of Collection										
Images										
Product Description										
Spell/Grammar										
Clarity/Readability										
Color and Graphics										
Navigation										
Shopping Cart										
Security										
Privacy Policy										

www.outpost.com

	1	2	3	4	5	6	7	8	9	10
Range of Collection										
Images										
Product Description										
Spell/Grammar										
Clarity/Readability										
Color and Graphics										
Navigation										
Shopping Cart										
Security										
Privacy Policy										

www.gap.com

	1	2	3	4	5	6	7	8	9	10
Range of Collection										
Images										
Product Description										
Spell/Grammar										
Clarity/Readability										
Color and Graphics										
Navigation										
Shopping Cart										
Security										
Privacy Policy										

www.shop4.com

	1	2	3	4	5	6	7	8	9	10
Range of Collection										
Images										
Product Description										
Spell/Grammar										
Clarity/Readability										
Color and Graphics										
Navigation										
Shopping Cart										
Security										
Privacy Policy										

END SURVEY

Thank you for taking the time to fill out this survey.   Once again, please return the complete survey to ctishue@wpi.edu within 1 week.

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