

International MSc in Business Administration
MARKETING RESEARCH, 2009/10

Fernando S. Machado

2010/06/16

Duration: 2h00m+30m

Name: _____ ✕ Number _____

I – Multiple Choice Questions (4.5 points).

1. Focus groups can help managers:

- a) Set prices for different market segments
- b) Develop copy material for advertisements for further testing
- c) Select channel members to handle a product
- d) All of the above are correct

2. The results of a pilot sample yield an estimated population standard deviation of 3.22 for the most important variable in a study. A previous study, which used the same questionnaire, yielded a standard deviation of 3.5. In computing the sample size needed to represent the population under study, the sample size generated by the pilot sample will be _____ than the sample size generated by using the standard deviation from the previous study.

- a) Larger
- b) Smaller
- c) About the same
- d) Cannot be determined

3. Which of the following is *not* a limitation of qualitative research?

- a) Greater opportunity for interviewer bias
- b) Problems securing highly skilled researchers for qualitative research
- c) Results are not representative beyond those persons interviewed
- d) All of the above are limitations of qualitative research

4. _____ are refined statements of the specific components of the problem.

- a) Hypotheses
- b) Research questions
- c) Marketing research problems
- d) Analytical models

5. The threat of history to internal validity refers to:

- a) Occurrence of events prior to an experiment
- b) Occurrence of events during an experiment
- c) Both a) and b) are correct
- d) Neither a) nor b) are correct

6. If subjects are reluctant to disclose information, a _____ scale should be used.

- a) Balanced
- b) Unbalanced
- c) Forced
- d) Nonforced

7. Factor analysis may not be appropriate in all of the following situations **except**:

- a) A small value for Bartlett's test of sphericity is found
- b) Small values of the KMO statistic are found
- c) The variables are not correlated
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II (7 points)

Michael Frost, the marketing manager for Camy foods, has been discussing the future advertising strategy for Camy Coffee with the firm's advertising agency. Frost had recently been to a conference on psychological perception. In a very interesting session, one specialist had pointed out that for consumers "what is beautiful is good". In other words, consumers tend to have more positive perceptions about brands whose adverts feature attractive people. Based on what he had learned at the conference, Frost proposed that the product be shown with a physically attractive female. The advertising agency countered with the argument that it would be better to employ physically unattractive people in the ads to make them more believable and effective by making them less "romantic" (since coffee is not a romantic product). Furthermore, the agency suggested it might be better to employ males rather than females. After a long discussion, Michael Frost proposed to run an experiment to address the following research questions:

- RQ1: Should physically attractive or unattractive people be used in the coffee ads?
- RQ2: Should male or female models be employed?

In particular, Frost decided that the experiment should determine how the physical attractiveness and the gender of the models impact the consumers' attitudes towards the ads, as well as their purchase intentions for the advertised product.

Finally the agency suggested the study should also investigate whether the answer to the above research questions is dependent on the demographic characteristics of consumers, such as age and gender (RQ3). For example, one could hypothesize that male consumers respond more positively to ads that employ women, while female consumers respond more positively to ads that employ men.

After some discussion about methodology, both Frost and the research team agreed that it would be more appropriate and more feasible to run a lab experiment, involving a sample of coffee consumers.

Assume that you are the leader of the research team.

- a) Explain how you would define the target population for your study. Which sampling method you would use to select the participants for the experiment?
- b) Propose a design for the experiment. Be as specific as possible and explain how you would proceed to run the experiment. Also explain which variables you would be measuring.
- c) Write a short questionnaire to collect relevant information from the participants of your experiment. Include a semantic differential question in your questionnaire.
- d) Explain how you would analyze the data collected in order to try to answer the above research questions. Be as specific as possible.
- e) Briefly discuss the internal and external validity of your experiment.

III (8.5 points)

XCourier is a company that specializes in the transportation and delivery of goods, both for businesses and for households. XCourier has invested significant resources to develop a new website for promoting its offerings, providing useful information to its customers and providing them with a new channel for ordering the firm's services. However, a few months after its launch, it became apparent that both the number of site visits and the number of online service orders were well below the management's expectations. The company's marketing department then decided to conduct a small scale MR project to try to uncover the causes of the site's disappointing performance. After some exploratory research, the following research questions were formulated:

- RQ1. How are the users of the site characterized? Do they differ demographically from other customers?
- RQ2. How satisfied are the users with the site?
- RQ3. How do the users evaluate the site on its salient attributes?
 - o H1: The site is more positively evaluated on "Simplicity of navigation" than on "Visual appeal"
- RQ4. What are the most important attributes of the website?
- RQ5. What are the site's most important attributes for generating online orders?
- RQ6. What are the main causes of the observed low levels of online service orders?
 - o H2: More than half of the customers do not know that the site can be used to order services.
 - o H3: the site is poorly designed for generating online orders;
- RQ7. What is the site's main target segment?

In order to try to address the above research questions, a small scale web survey was conducted among a random sample of XCourier's customers. 150 interviews were completed in total. The management expects that this project will provide useful information for improving the site and better fulfilling the needs and expectations of its customers.

An extract of the questionnaire follows:

We are conducting a study about XCourier's services and in particular about its website. Could you please answer a few questions about your own preferences and opinions? The questionnaire will last about 10 minutes and there are no right or wrong answers. The survey is anonymous and all your answers are strictly confidential.

R6) Did you know that it is possible to order XCourier's services online?
No 0
Yes..... 1

R7) On average how often do you visit XCourier's website?
I have never visited the site (*) 1
Less than once per month 2
1 or more times per month..... 3

R8) Have you ever ordered XCourier's services through its website?
No 0
Yes..... 1

R12) Using a scale of 1=very poor to 5=excellent, how would you rate XCourier's website on the following attributes?

Simplicity of navigation	_____
Service availability	_____
Payment safety	_____
Easiness to order services on line	_____
Speed of use and page downloads	_____
Visual appeal	_____
Provision of up-to-date information	_____

R13) Overall how satisfied are you with XCourier’s website?

- Very satisfied..... 5
- Satisfied..... 4
- Neither satisfied or dissatisfied 3
- Dissatisfied 2
- Very dissatisfied..... 1

R17) I am going to read you a list of statements and for each one, please tell me whether you agree completely, agree somewhat, neither agree nor disagree, disagree somewhat, or disagree completely.

	Agree Completely	Agree Somewhat	Neither Agree Nor Disagree	Disagree Somewhat	Disagree Completely]
1) Sometimes I have to skip lunch to..... take care of personal matters	5	4	3	2	1	
2) I use the internet very often at home	5	4	3	2	1	
3) I use the internet very often in my work....	5	4	3	2	1	
4) I do a lot of online shopping.....	5	4	3	2	1	
5) I often use the internet for banking.....	5	4	3	2	1	
6) I’d rather have more free time than a higher income	5	4	3	2	1	
7) I often use my cell phone to check my mail	5	4	3	2	1	

These last few questions are for classification purposes only.

R18) What is your age?

- 18 to 24 years 1
- 25 to 34 years 2
- 35 to 44 years 3
- 45 years or older 4

R20) What is the last grade of school you completed?

- High school or less 1
- Bachelor/Undergraduate degree 2
- Master or PhD 3

R23) Which of the following groups best represents your personal income after taxes?

- Under €1,000 1
- €1,001 - €2,000..... 2
- €2,001 - €3,000..... 3
- \$3,001 or more 4

Thank you for taking time to complete our survey.

(*) Respondents who report no previous visits to the website in R7 are automatically directed to question R17.

- a) Conduct the appropriate data analysis to address research question RQ2. Interpret the results.
- b) Conduct the appropriate data analysis to address RQ3. Test H1. Interpret the results.
- c) Conduct the appropriate analysis to address RQ4. Interpret the results.
- d) Conduct the appropriate analysis to address RQ5 and RQ6 and interpret the results. Are any of the two hypotheses H2 and H3 confirmed by the data?
- e) Run a factor analysis on the items of R17. Interpret the results.
- f) Run a cluster analysis (3 clusters) on the factor scores obtained in e). Use the K-means cluster method. Then characterize the clusters in terms of demographics, frequency of website use, use of website for ordering online and satisfaction with website. What are the main conclusions and relevance of the results you have obtained?
- g) Briefly summarize what you have learned from analysing the data. Based on the analysis, explain as clearly as possible what would be your recommendations to the management of XCourier.

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- d) The variables are correlated *

II

a) Possible definition of target population: adult coffee consumers (defined for example as anybody who has consumed home coffee at least once over the last 30 days).

Sampling method: Depending in whether a sampling frame is available or not, we could use simple random sampling of any other methods of probabilistic sampling (for example, participants could be selected through systematic sampling in a group of shopping malls).

b) Although there are other possibilities, the most appropriate design for this experiment would be the factorial design. In this case, a factorial design has 4 conditions:

		Attractiveness of Model	
		Low	High
Gender of Model	Female	Fem, Low	Fem, High
	Male	Male, Low	Male, High

The experiment could be conducted as follows:

- Randomly select four different and large enough samples of participants/respondents for the lab experiment
- In a movie theatre expose each group/sample to a TV show. During the interval show a group of advertisements, including one of the 4 versions/conditions of the coffee test advert (Fem, Low), (Male, Low), (Fem, high), (Male, High). As much as possible the test adverts must be similar, except in what concerns the two factors being studied (Gender of ad model and attractiveness of ad model). Measuring attractiveness has a subjective component so an attractiveness measure of the models involved could be obtained by using average evaluations from a group of referees.
- At the end of the TV show run a survey among participants to measure their characteristics (demographic profile, etc.) and in particular their attitudes toward the advert they saw and toward Camy Coffee. Possible measures could include for example:
 - Brand awareness;
 - Advert recall
 - Overall liking/disliking of the adverts
 - Ratings of the advert on various dimensions
 - Purchase intentions for Camy coffee.

Preferably the questions about Camy coffee and about the Camy coffee advert should be disguised in the middle of questions about other product categories and/or about other adverts.

c) Many different designs could be adopted for this questionnaire:

One example of a semantic differential question that could be included would be:

“I found the Camy Coffee advert:”

Interesting	_____	_____	_____	_____	_____	Uninteresting
Appealing	_____	_____	_____	_____	_____	Unappealing
Funny	_____	_____	_____	_____	_____	Not Funny
Informative	_____	_____	_____	_____	_____	Uninformative

c) Let us assume that we have a measure of preference/attitude toward the advert (taken from the responses to one of the survey questions). Call this measure X.

A simple way of testing RQ1 and RQ2 would be to conduct independent sample T-tests to compare the mean levels of advert approval/liking across conditions.

For example we could test:

$$\mu_{\text{Male}} = \mu_{\text{Fem}}$$

And

$$\mu_{\text{Low}} = \mu_{\text{High}}$$

Alternatively we could conduct an ANOVA where the dependent variable (metric) is the measure of attitude toward the advert (variable X) and the factors (non-metric) are the treatment variables (gender and attractiveness)

A simple way of testing RQ3 would be to break the samples according to the demographic characteristics of the participants and run the analysis described above for each demographic group. For example:

Take sub-sample of Male participants and test the hypothesis:

$$\mu_{\text{Male model}} = \mu_{\text{Fem. model}}$$

Then take sub-sample of female participants and test again:

$$\mu_{\text{Male model}} = \mu_{\text{Fem. model}}$$

III

a) Conduct the appropriate data analysis to address research question RQ2. Interpret the results.

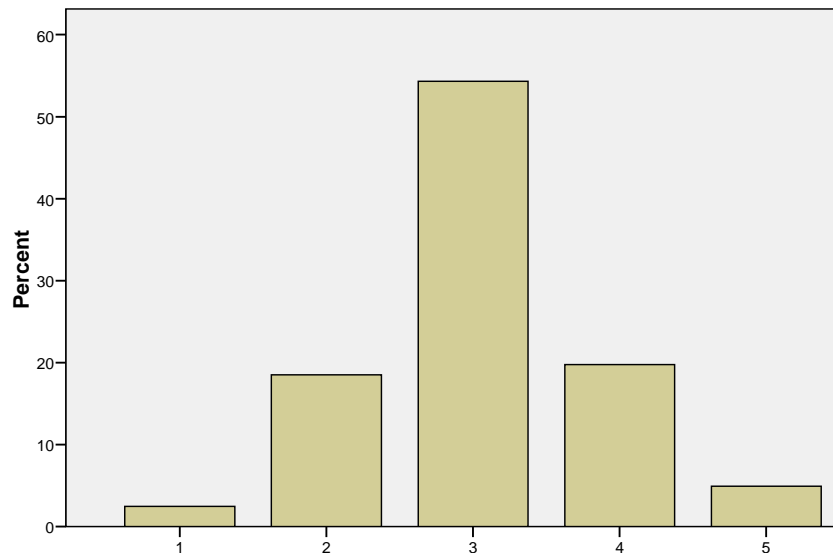
Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Overall how satisfied are you with your use of the site?	81	1	5	3.06	.827
Valid N (listwise)	81				

Overall how satisfied are you with your use of the site?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1	2	1.3	2.5	2.5
2	15	10.0	18.5	21.0
3	44	29.3	54.3	75.3
4	16	10.7	19.8	95.1
5	4	2.7	4.9	100.0
Total	81	54.0	100.0	
Missing System	69	46.0		
Total	150	100.0		

Overall how satisfied are you with your use of the site?



The overall level of satisfaction with the site is relatively low (mean of 3.06 on a scale of 1-5) and only one quarter of the users say they are satisfied of very satisfied. Therefore, from a managerial perspective, the observed levels of satisfaction are far from what the firm should aim at.

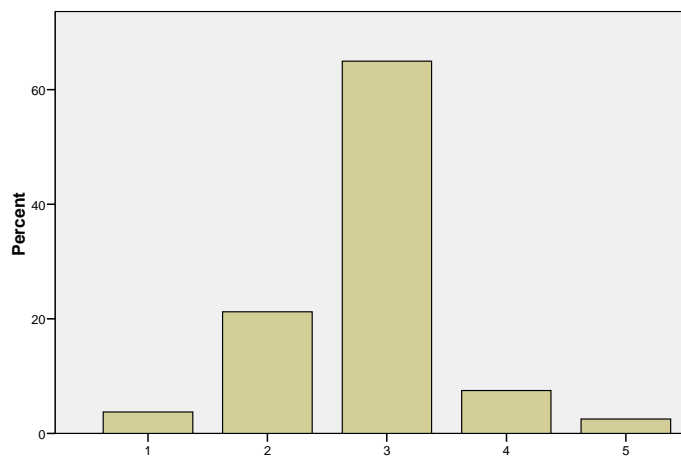
b) Conduct the appropriate data analysis to address RQ3. Test H1. Interpret the results.

Descriptive Statistics

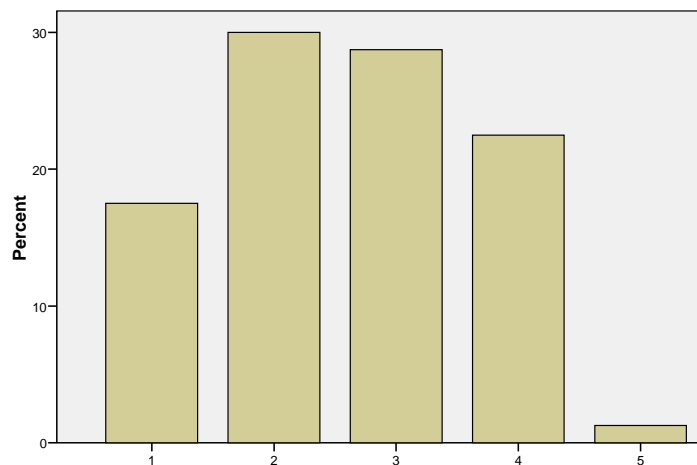
	N	Minimum	Maximum	Mean	Std. Deviation
Simplicity of navigation	80	1	5	3.45	.840
Service availability	80	1	5	3.29	.860
Payment safety	80	1	5	2.84	.719
Easiness to order services	80	2	5	3.28	.693
Speed of use and page downloads	80	1	5	2.60	1.063
Visual Appeal	80	1	5	3.38	.891
Provision of up-to-date Information	80	1	5	3.28	.927
Valid N (listwise)	80				

- Satisfaction levels on various attributes continue to be relatively low.
- Site is more favorably evaluated on “Simplicity of Navigation” (mean=3.45) and “Visual Appeal” (3.38)
- Site is very poorly evaluated on “Payment Safety” (2.84) and “Speed of Usage and page downloads” (2.60)

Payment safety



Speed of use and page downloads



Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Simplicity of navigation	3.45	80	.840	.094
	Visual Appeal	3.38	80	.891	.100

Paired Samples Test

		Paired Differences				t	df	Sig. (2-tailed)	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower				Upper
Pair 1	Simplicity of navigation - Visual Appeal	.075	1.028	.115	-.154	.304	.652	79	.516

Test of H1: Mean evaluations on “Simplicity of Navigation” and Visual Appeal” cannot be rejected to be equal.

c) Conduct the appropriate analysis to address RQ4. Interpret the results.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.904 ^a	.818	.800	.357

a. Predictors: (Constant), Provision of up-to-date Information, Simplicity of navigation, Visual Appeal, Payment safety, Service availability, Speed of use and page downloads, Easiness to order services

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	41.218	7	5.888	46.237	.000 ^a
	Residual	9.169	72	.127		
	Total	50.388	79			

a. Predictors: (Constant), Provision of up-to-date Information, Simplicity of navigation, Visual Appeal, Payment safety, Service availability, Speed of use and page downloads, Easiness to order services

b. Dependent Variable: Overall how satisfied are you with your use of the site?

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.427	.252		-1.696	.094
	Simplicity of navigation	.186	.065	.195	2.849	.006
	Service availability	.148	.061	.160	2.425	.018
	Payment safety	.377	.070	.340	5.361	.000
	Easiness to order services	-.001	.085	-.001	-.010	.992
	Speed of use and page downloads	.252	.054	.335	4.702	.000
	Visual Appeal	.077	.056	.086	1.369	.175
	Provision of up-to-date Information	.123	.048	.143	2.548	.013

a. Dependent Variable: Overall how satisfied are you with your use of the site?

Conclusions: Regression analysis suggests that most important attributes are:

- 1) Payment Safety (standardized coefficient=.34)
- 2) Speed of use and page downloads (.335)
- 3) Simplicity of navigation (.195)

Attributes that do not have a significant impact overall satisfaction:

- 1) Easiness to order services
- 2) Visual appeal

Therefore, one can conclude that the site is very poorly evaluated on its most important attributes.

d) Conduct the appropriate analysis to address RQ5 and RQ6 and interpret the results. Are any of the two hypotheses H2 and H3 confirmed by the data?

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	56.107 ^a	.496	.661

a. Estimation terminated at iteration number 7 because parameter estimates changed by less than .001.

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1	R12_A	-.220	.539	.167	1	.683	.802
	R12_B	.525	.549	.914	1	.339	1.690
	R12_C	3.364	1.082	9.663	1	.002	28.904
	R12_D	3.140	.984	10.180	1	.001	23.101
	R12_E	.079	.434	.033	1	.855	1.082
	R12_F	-.983	.538	3.338	1	.068	.374
	R12_G	.201	.482	.174	1	.677	1.223
	Constant	-18.401	5.085	13.093	1	.000	.000

a. Variable(s) entered on step 1: R12_A, R12_B, R12_C, R12_D, R12_E, R12_F, R12_G.

RQ5: The attributes that are found to be crucial for generating online orders are:

- Payment Safety (R12_C)
- Easiness to order services on line (R12_D)

RQ6: Causes for low levels of online service orders

Did you know that it is possible to order XC's services through its website?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid No	67	44.7	44.7	44.7
Yes	83	55.3	55.3	100.0
Total	150	100.0	100.0	

H2: 45% of customers do not know that the site can be used to order services on line

Users vs non-users

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Non-users	69	46.0	46.0	46.0
Users	81	54.0	54.0	100.0
Total	150	100.0	100.0	

- 46% have never visited the site.

Did you know that it is possible to order XC's services through its website? * How often do you visit XC's website? Crosstabulation

		How often do you visit XC's website?			Total
		I have never visited	Less than one a month	1 or more times per month	
Did you know that it is possible to order XC's services through its website?	No	Count 51 73.9%	14 22.6%	2 10.5%	67 44.7%
	Yes	Count 18 26.1%	48 77.4%	17 89.5%	83 55.3%
Total		Count 69 100.0%	62 100.0%	19 100.0%	150 100.0%

- Even among those that have visited the site, almost 20% did not know that the site could be used to order services online.

H3: As seen before, the site is poorly designed to generate service orders on line, **particularly because customers have a poor perception of its safety for making payments.**

e) Run a factor analysis on the items of R17. Interpret the results.

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.673
Bartlett's Test of Sphericity	Approx. Chi-Square	158.648
	df	21
	Sig.	.000

The KMO measure has a relatively high value. Furthermore, the Bartlett's test of sphericity clearly rejects the hypothesis of no correlation between the variables. Therefore, we can conclude that the data is appropriate for conducting factor analysis.

Communalities

	Initial	Extraction
Sometimes I skip lunch to solve personal matters	1.000	.708
I use the internet very often in my private life	1.000	.639
I use the internet very often in my work	1.000	.649
I do a lot of on-line shopping	1.000	.725
I often use the internet for banking	1.000	.702
I'd rather have more free time than a higher income	1.000	.538
I often use my cell phone to check my mail	1.000	.667

Extraction Method: Principal Component Analysis.

The communalities are all relatively high except for one variable "I'd rather have more free time...". One possibility (not adopted here) would be conduct factor analysis after having removed this variable.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.281	32.585	32.585	2.281	32.585	32.585	2.053	29.331	29.331
2	1.216	17.374	49.959	1.216	17.374	49.959	1.380	19.717	49.048
3	1.132	16.170	66.129	1.132	16.170	66.129	1.196	17.080	66.129
4	.793	11.335	77.464						
5	.691	9.871	87.335						
6	.471	6.730	94.064						
7	.415	5.936	100.000						

Extraction Method: Principal Component Analysis.

Three factors have Eigen values above 1 and account for about two-thirds of the variation included in the original seven variables. Therefore, a three factor model can be adopted.

Rotated Component Matrix^a

	Component		
	1	2	3
Sometimes I skip lunch to solve personal matters	-.015	.825	.165
I use the internet very often in my private life	.740	.303	.019
I use the internet very often in my work	.185	-.216	.754
I do a lot of on-line shopping	.844	.114	.010
I often use the internet for banking	.820	-.080	.154
I'd rather have more free time than a higher income	.293	.659	-.133
I often use my cell phone to check my mail	-.044	.327	.747

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 5 iterations.

Factor 1: Personal Use of internet

Factor 2: Time scarcity

Factor 3: Professional use of internet

f) Run a cluster analysis (3 clusters) on the factor scores obtained in e). Use the K-means cluster method. Then characterize the clusters in terms of demographics, frequency of website use, use of website for ordering online and satisfaction with website. What are the main conclusions and relevance of the results you have obtained?

Final Cluster Centers

	Cluster		
	1	2	3
Personal Use	.07382	-1.50627	.63132
Time Scarcity	-.16485	-.06458	.15308
Professional Use	-1.19616	.56971	.63740

Number of Cases in each Cluster

Cluster	1	51.000
	2	31.000
	3	68.000
Valid		150.000
Missing		.000

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Personal Use	Between Groups	97.715	2	48.857	140.041	.000
	Within Groups	51.285	147	.349		
	Total	149.000	149			
Time Scarcity	Between Groups	3.109	2	1.554	1.566	.212
	Within Groups	145.891	147	.992		
	Total	149.000	149			
Professional Use	Between Groups	110.660	2	55.330	212.140	.000
	Within Groups	38.340	147	.261		
	Total	149.000	149			

The analysis lead to the identification of three clusters which differ significantly in terms of “Personal Use” and “Professional Use” but not in terms of “Time Scarcity”. The 3 clusters can be very briefly described as follows:

Cluster 1 (1/3 of the population): This is a cluster of individuals who tend to use the internet exclusively for personal use (**Personal Users**)

Cluster 2 (21% of the population): Segment of individuals who use the internet for professional use (**Professional Users**).

Cluster 3 (45% of the population): segment of individuals who use the internet very intensively, both for personal and for professional use (**Intensive Users**).

Cluster Profiling:

1. Age

Age * Cluster Number of Case Crosstabulation

			Cluster Number of Case			Total
			Personal Users	Professional Users	Intensive Users	
Age	18-24	Count	17	3	5	25
		% within Cluster Number of Case	33.3%	9.7%	7.4%	16.7%
	25-34	Count	21	11	52	84
		% within Cluster Number of Case	41.2%	35.5%	76.5%	56.0%
	35-44	Count	6	10	8	24
		% within Cluster Number of Case	11.8%	32.3%	11.8%	16.0%
	45 or more	Count	7	7	3	17
		% within Cluster Number of Case	13.7%	22.6%	4.4%	11.3%
Total		Count	51	31	68	150
		% within Cluster Number of Case	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	35.415 ^a	6	.000
Likelihood Ratio	33.657	6	.000
Linear-by-Linear Association	.059	1	.808
N of Valid Cases	150		

a. 2 cells (16.7%) have expected count less than 5. The minimum expected count is 3.51.

Conclusion: Personal users are the youngest cluster. Professional users are the oldest cluster.

2. Education

Education * Cluster Number of Case Crosstabulation

			Cluster Number of Case			Total
			Personal Users	Professional Users	Intensive Users	
Education	Basic or secondary	Count	9	2	3	14
		% within Cluster Number of Case	17.6%	6.5%	4.4%	9.3%
	Bachelor/ Undergraduate degree	Count	30	25	41	96
		% within Cluster Number of Case	58.8%	80.6%	60.3%	64.0%
	Masters or PHd	Count	12	4	24	40
		% within Cluster Number of Case	23.5%	12.9%	35.3%	26.7%
Total		Count	51	31	68	150
		% within Cluster Number of Case	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	11.807 ^a	4	.019
Likelihood Ratio	11.743	4	.019
Linear-by-Linear Association	5.827	1	.016
N of Valid Cases	150		

a. 2 cells (22.2%) have expected count less than 5. The minimum expected count is 2.89.

Conclusion: Intensive users are the most educated cluster

3. Income

Monthly income * Cluster Number of Case Crosstabulation

			Cluster Number of Case			Total
			Personal Users	Professional Users	Intensive Users	
Monthly income	Up to 1000 €	Count	17	10	11	38
		% within Cluster Number of Case	33.3%	32.3%	16.2%	25.3%
	1001-2000 €	Count	23	15	35	73
		% within Cluster Number of Case	45.1%	48.4%	51.5%	48.7%
	2001-3000 €	Count	7	4	17	28
		% within Cluster Number of Case	13.7%	12.9%	25.0%	18.7%
	More than 3000 €	Count	4	2	5	11
		% within Cluster Number of Case	7.8%	6.5%	7.4%	7.3%
Total		Count	51	31	68	150
		% within Cluster Number of Case	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.101 ^a	6	.312
Likelihood Ratio	7.266	6	.297
Linear-by-Linear Association	3.232	1	.072
N of Valid Cases	150		

a. 3 cells (25.0%) have expected count less than 5. The minimum expected count is 2.27.

4. Frequency of website use

How often do you visit XC's website? * Cluster Number of Case Crosstabulation

			Cluster Number of Case			Total
			Personal Users	Professional Users	Intensive Users	
How often do you visit XC's website?	I have never visited	Count	24	18	27	69
		% within Cluster Number of Case	47.1%	58.1%	39.7%	46.0%
	Less than one a month	Count	25	8	29	62
		% within Cluster Number of Case	49.0%	25.8%	42.6%	41.3%
	1 or more times per month	Count	2	5	12	19
		% within Cluster Number of Case	3.9%	16.1%	17.6%	12.7%
Total		Count	51	31	68	150
		% within Cluster Number of Case	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.849 ^a	4	.065
Likelihood Ratio	10.022	4	.040
Linear-by-Linear Association	2.863	1	.091
N of Valid Cases	150		

a. 1 cells (11.1%) have expected count less than 5. The minimum expected count is 3.93.

Conclusion: There is some evidence that the segment of intensive internet users (cluster 3) is the one that uses the website most often.

5. Use of website for ordering online

Have you ever ordered XCourier services through its website? * Cluster Number of Case Crosstabulation

			Cluster Number of Case			Total
			Personal Users	Professional Users	Intensive Users	
Have you ever ordered XCourier services through its website?	Yes	Count	7	10	22	39
		% within Cluster Number of Case	25.9%	76.9%	55.0%	48.8%
	No	Count	20	3	18	41
		% within Cluster Number of Case	74.1%	23.1%	45.0%	51.3%
Total		Count	27	13	40	80
		% within Cluster Number of Case	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.385 ^a	2	.006
Likelihood Ratio	10.854	2	.004
Linear-by-Linear Association	4.571	1	.033
N of Valid Cases	80		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 6.34.

Conclusions:

- Among those who use the site, the cluster who uses it more intensively to order on line is cluster 2 (Professional users)
- Personal users (cluster 1) do not use the site to order online.

6. Satisfaction with website

Descriptives

Overall how satisfied are you with your use of the site?

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Personal Users	27	2.85	.818	.157	2.53	3.18	1	4
Professional Users	13	3.46	.967	.268	2.88	4.05	2	5
Intensive Users	41	3.07	.755	.118	2.83	3.31	1	5
Total	81	3.06	.827	.092	2.88	3.24	1	5

ANOVA

Overall how satisfied are you with your use of the site?

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3.273	2	1.636	2.482	.090
Within Groups	51.419	78	.659		
Total	54.691	80			

Conclusion: Although the hypothesis of equal means can only be rejected at the 10% level, there is some evidence that Professional users are the most satisfied with the XCourier's site.

g) Briefly summarize what you have learned from analysing the data. Based on the analysis, explain as clearly as possible what would be your recommendations to the management of XCourier.

- The overall level satisfaction with the site is quite low;
- There is clear evidence that the site is poorly designed, since its most important attributes (Payment safety and Speed of use and page downloads) are very poorly evaluated by consumers;
- Payment safety in particular, seems to be crucial to induce orders online;
- Almost half of the company's customers have never visited the site and 45% did not know that the site can be used to order on line;
- Personal users seem to be a problem for this company: 50% of them have never visited the site and from those who have only ¼ have ordered services online. This cluster is also the least satisfied with the site;
- Intensive users are the ones who visit the site more often but do not seem to use it much to order services online;
- Professional users are those who are more satisfied with the site and also those who use it more intensively to make online orders.

The student could offer various recommendations that would potentially address the problems outlined above and be consistent with the project's main results. For example, an obvious implication is that management should redesign the site to increase its speed of use, as well as to improve the consumers' perceptions of payment safety. Different actions to convert intensive users into buyers or to increase awareness of the site could also be suggested.