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36-303 Group G Rough Draft

April 8, 2010

For the final draft

(1) title page with title, your names, date, etc.

(2) section head

(3) all sections (incl references, appendices, etc!)

(4) page numbers on every page!

When you include figures and tables, make sure they have names (figure 3, table 4), captions that describe them, and make sure that every figure and table in the main report is referred to by name in the text of the report.

The research question being studied in this project is “Carnegie Mellon Undergraduates’ Perception, Utilization, and Attitudes of Mandatory Fees across Non-Academic Resources.” Carnegie Mellon University has compulsory fees as part of its tuition. However, the student's participation in deciding how to spend the funds is limited by institutional constraints. This research study will analyze CMU undergraduate students’ awareness and perceptions of how funds are distributed for non-academic resources. The study will also assess CMU students’ utilization of the services provided by the fees and their attitudes about them. Moreover, the survey will evaluate to what degree CMU students might want to participate in the decision-making process. The data will show if the funds provided by students are appropriately distributed according to the students' preferences

There are many sources of previous research and information available that is relevant to this study. The Carnegie Mellon Enrollment Services webpage provides information of Undergraduate tuition and fees. A research study conducted in the University of Toledo assessed students’ awareness and perceptions toward the mandatory activity fee. The main purpose of their study was to determine whether the students were conscious that they pay a general fee each semester, the degree to which students can identify the dollar amount of the general fee, how accurately students can identify where funds from the general fee are allocated, and how students perceive the importance of organizations and activities receiving funds from the general fee. Hart F. Weichselbaum and Gary H. McClelland published a study, “Student Attitudes toward Mandatory Fees,” in 1978, which found that, "Only graduate students advocated a cutback in services to obtain a reduction in fees; most students would accept higher fees to fund three new programs." “Paying for Technology: student fees and libraries,” an article published by Janet Webster and Cheryl Middleton, surveyed students to explore how libraries may tap into technology resource fees as a possible source of funding for library technology.

Through this research study, it has been found that 77.1% of subjects were aware of the port authority fee, 75.8% were aware of the activities fee, 64.7% were aware of the technology fee, and 49.7% were aware of the media fee. 80.4% of subjects felt their major requires use of the technology fee. 30.1% use their CMU ID to ride a port authority public bus a few times a

Please be sure to include all citations from your proposal in this paper

To see how to format citations in the body of the paper, please see the section on parenthetical citations at http://writing.wisc.edu/Handbook/DocAPA.html

week. 37.3% rarely read newspapers provided by the media fee. 63.4% expressed that the student activities fee was fair.

For this survey our target population was the undergraduate student body at Carnegie Mellon University. To contact the population we planned on using an online survey and emailing our sample with a link to the survey. Since, Carnegie Mellon University provides all students with an email account, the sample frame is every undergraduate who actually checks their campus email account. Thankfully, the culture of CMU is such that most people do check their campus email account.

space or para indents or something, to separate paragraphs...

We decided a simple random sample would be best for this survey. It allowed us to very quickly select our sample and still be close to selecting the correct amount of students for each class. Also, if we found that the responses within different classes are incredibly biased, we can do post-stratification to adjust. With the SRS, we wanted a 10% margin of error. To get this margin of error we need 96.04 respondents. Most email surveys get around 25% response rate, and we wanted to make sure we are safe, so we factored in a 20% response rate and found that we needed approximately 500 people in our sample.

To collect our sample we used the campus directory book as our list of names and email addresses. This book contained the email address for all students at CMU including graduate students. To look up an email address we needed three random numbers. The first random number was the page number, the second was the column number, and the fourth was the row number. If there was no student at that location another set of random numbers was generated and another student chosen. Also, if the student was not an undergraduate, another set of random numbers was generated and another student chosen. After we had a list of 500 students, we use SurveyMonkey.com to create the survey and email out to everyone an email explaining the survey, and giving them the link. In the email, respondents were able to opt-out of any future emails as well. We followed up the first email with a reminder two days later, and a second reminder six days later. We have had 153 responses and 19 opt-outs. The survey is designed such that a respondent cannot finish it without answering all of the questions, so partial responses was not an issue.

Here I would put a few sample questions, but we would like to wait in deciding which questions we highlight until we use the final numbers to decide which questions are the most interesting. This way we can correlate the example questions with further analysis in the results section.

ok

Having sent out the questionnaire to our sample of 500 Carnegie Mellon undergraduate students, and having received responses from 152 students [*so far*], we collected and analyzed our data with aim to answer our original research question of how CMU undergraduates perceive and utilize the four mandatory fees that they pay each semester. The first six questions asked for demographic information so that we may use post-stratification weights to re-weight the sample to make it proportional to the population of all undergraduate students at Carnegie Mellon. The demographic questions we asked for included year in college, school in which the student is enrolled, gender, whether the student lives on campus or not, whether the student is part of a student organization or not, and whether the student is international.

Once we are done collecting data, we will decide which demographic questions (which quite possible will be all six questions) we will use for our post-stratification, and we will decide which method that we learned in class we will use to calculate our post-stratified means and variances, then we will calculate our new statistics with hopefully lower more accurate means and lower variances.

ok

Each of the remaining questions pertains to general awareness or utilization of one of the specific fees: the Port Authority Fee, the Media Fee, the Technology Fee and the Student Activities Fee. For each of the fees we first asked whether the student was aware of the fee, and then we asked, if they were aware, to make a guess on how much the fee costs per semester.

We have not finished our data collection, but when we are finished, I will present the percentage of students that answered yes to each of the four fees and then the mean and median of the guesses and compare those figures to the actual fee. Both of these statistics for each fee will give an indication as to how aware and knowledgeable the students are of each fee. So far, we have found that the more people claimed to be aware of the Port Authority Fee than any other fee with 77% of our sample answering yes to the question about whether or not they were aware of the fee. The Media Fee has the lowest awareness with just 50% of the population answering yes, while the Technology Fee and the Student Activities Fee had percentages of yes answers of 64.5% and 75.7% respectively. The respondents were most accurate when guessing the Student Activities Fee, but this was the only fee that people guessed a cost less than the actual fee. We will go more in depth with our analysis once we finish collecting data.

OK, good. You should also make some inferences about the target population of cmu students, using approporiate confidence intervals and so forth. This does not have to be done for every result, but certainly for the major results.

The question that asked respondents to guess the cost of each fee is the only question on our survey that was not required. For this reason, it is the only question in which we

encounter the issue of item nonresponse. We made the question optional because we only instructed students who were aware of each fee to guess the price. However, more people skipped each of the four open ended optional questions than had answered "no" to the prior question asking if they were aware of the fee. The nonresponse percentages for the Port Authority Fee, Media Fee, Technology Fee and Student Activities Fee were 21%, 22%, 29% and 31% respectively. This could be an indication that people are less knowledgeable of the cost of the Student Activities Fee and the Technology Fee than the Port Authority Fee and Media Fee because respondents may have skipped the question because, while they knew that each fee existed, they had no idea how much each fee was. This could also simply be a result of respondents' laziness and preference to skip optional questions and the increasing nonresponse could be a result of respondents getting more tired of the survey after more questions or people realizing that the questions were optional.

you can decide if these percentages are significantly different using a z test for the difference in proportions, a confidence interval for the difference (like on exam 2), confidence intervals for the individual percentages, etc.

In addition to looking at the differences in nonresponse and the mean guesses of costs based on the data we have, we will also impute data to fill in the item nonresponse and compare this to the results of the unimputed data we already have.

these analyses are great. I'd suggest that you put a sub-section title on each one so they are easy to separately identify and read

The remaining questions asked for specific information regarding students' attitudes or utilization of each of the four fees. For the Port Authority Fee, we were primarily interested in two statistics: how many students are willing to pay the fee of $42 per semester, and how many students should be willing to pay the $42 fee based on how often they ride the bus and how much they would pay over the course of the semester for each bus ride. We couldn't tell respondents that the cost of the fee is $42 per semester and then ask them whether or not they would be willing to pay this amount because earlier, we asked students to guess the cost of the fee. So instead we asked students an open ended question of how much they would be willing to pay as a flat rate per semester given that a zone 1 ride normally costs $2.00 and a zone 2 ride normally costs $2.75. While the average amount that students were willing to pay was $65.63, the median was only $40, a result of the fact that the distribution of student' prices at which they would be willing to pay for the bus services is skewed to the right due to the people who take the bus very frequently. Because the median is less than the actual fee of $42, one can see that only a minority of students are willing to pay the Port Authority Fee. In fact , only 38.2% of respondents claimed that they would pay a price of greater than or equal to $42.

To make an inference or generalization to the whole tagert pop, a 95% CI for the population mean would be inter-esting. Given the skewing, it might be worth looking at the 2.5th and 97.5th percentiles as well.

great; I guess you took out "silly" answers (like $10000) so that the right skewing really is due to higher bus use...

Asking students to name a price and comparing that price to the actual $42 most likely yields a lower proportion of students who we recorded as willing to pay the fee than had we told students that the fee is $42 and then asked them if they would be willing to pay this. This is because of the large number of people who gave answers close to $42.

The second statistic we wanted for comparison is the proportion of students who *should* be willing to pay the $42 fee based on how often they ride the bus. To do this, we calculated

the number of times each student rides the bus per semester. On average, student ride the bus 52.86 times per semester, but we are more interested in the distribution of rides per semester than the average. We asked each student how often they ride the bus, with categorical responses, but by coding each category as a specific number of rides per semester we found that 8 people ride the bus 300 times per semester, 12 people ride the bus 120 times per semester, 46 people ride the bus 60 times per semester, 32 people ride the bus 25.71 times per semester, 34 people ride the bus 16 times per semester, 17 people ride the bus 4 times per semester and 3 people never ride the bus. We then wanted to find out, given that rides cost either $2.00 or $2.75 how many students would be spending more than $42 on bus fares if it weren't for the flat rate fee and thus how much students should be willing to pay more than $42 for the Port Authority Fee. As it turns out, even if all the fares were at their cheapest, the 98 people that ride the bus at least 25.71 times per semester all would be paying over $42, and that even if all fares were $2.75, the 20 people that ride the bus 4 or fewer times per semester would not be spending $42 on bus fares. The 34 people that ride the bus 16 times per semester would need 97.7% of their rides to be zone 2 rides, and this will not be the case because there are not very many zone 2 rides, so the 34 people riding the bus 16 times would not otherwise be spending $42 per semester. Overall, this means that 64% of students would be spending at least $42 per semester on bus fares without the fee and thus should be willing to pay the Port Authority Fee, a proportion that is much higher than the 38.2% who claimed to be willing to pay the fee.

can you say a little more about what you did here, either here or in an appx?

So, if people paid what they think they owe, the fee collected would be greater ($6 x # of students) because of a few generous students. But a majority of people think they should pay less than $42. Interesting.

We used a similar method as with the Port Authority Fee to calculate how much each student would be spending on newspapers had there not been a flat rate per semester but rather newspapers that can be purchased for $1 per issue. 8 people read the newspaper 120 times per semester, 9 people read the newspaper 85.71 times per semester, 1 person reads the newspaper 34.28 times per semester and 17 people read the newspaper 17.14 times per semester. These figures were based on people who answered the question about how often they read a newspaper provided by the Media Fee with categorical responses such as daily or weekly. The 35 people referenced above all would be spending more than the actual $5 per semester on newspapers and thus are utilizing the media fee well. The remaining 117 people in our sample said they read the newspaper monthly (4 times per semester, 13 people), rarely (2 times per semester, 56 people) or never (48 people). Overall, that amounts to just 23% of our sample that utilizes the fee well, while the remaining 77% are wasting money with the fee. However, the fee is only $5 per semester so it is hard to say that the fee is unfair or a waste of money, and additionally, the average number of times a student reads a newspaper is 14.61 times per semester due to the right-skewness of the distribution, and that number is worth more than the $5 fee.

I am not sure where these calculations are coming from. Is this based on the amt of $ each person said they would be willing to pay, or something else?

so, in a sense, very similar to the bus usage results?

We have done little few calculations regarding the Technology Fee because the amount of numbers we must calculate is so large due to the large number of software packages provided by the fee, so we will wait until we are done receiving responses before calculating the value of the Technology Fee. However, just from looking at the charts and preliminary data, we believe the mean and median utilization of the fee will be worth well more than the actual fee of $75 per semester. Also, we do have calculations from responses to a question that asked students if their major requires the use of the Technology Fee, which I detail in the next paragraph.

that's great

Overall 80.9% of our sample said that they feel that their major requires the use of the technology fee. While we did not ask each student for their major, we do have what school they are enrolled in, and we can then find the cross-tabulated proportions for how many students believe that their major requires use of the technology fee within each school. SCS and CIT had the two highest proportions of students responding yes, with 92.9% and 90.6% respectively. The Tepper School had the lowest proportion with just 53.8% if their students responding yes, while CFA, MCS and HSS had proportions of 87.5%, 75%, and 71.4% respectively. The order of proportions by schools is not too surprising, but the large difference between Tepper and all other schools is certainly greater than expected.

you can and should put the table itself in the paper to illustrate this

It is impossible to put a value on the Student Activities Fee because it is impossible to put a dollar amount on the value of the utilization of the fee by the students. The money from the fee funds student organizations which gives opportunities to undergraduate students to participate in activities they enjoy, but we cannot estimate how much it would cost to join a student organization had there been no fee the way we can estimate how much money students would spend on bus fares had there been no Port Authority Fee. Instead, we can measure how aware students are of the fee and how many students think that the fee is fair. We also asked students which, if any, concerts they have been to which have been put up by ABConcerts, an organization that receives funding from the activities fee. Going to a concert would be one way to utilize the fee; however, 75% of our respondents said they had not been to any of the concerts. Additionally, we asked another awareness question, asking how the fees are allocated, but 55% of our respondents did not know this. Nonetheless, despite having limited awareness of the details of the fee and despite not going to many of the concerts provided by ABConcerts, 63.2% of our respondents thought the fee was fair. We believe this is because of the opportunities the fee provides students to join student organizations. To further illustrate this, we looked at the difference of the percentages of students who thought the fee was fair among those who are or are not members of student organizations. 68.4% of students in student organizations thought the fee was fair while only 47.4% of students not in student organizations thought the fee was fair. The majority of students who are in student organizations (75%) and the majority who think the fee is fair leads us to believe that students

good

generally utilize this fee as well. Overall, the only fee that the majority of students did not utilize well was the media fee, but because of its low cost, we think that all four fees are fair.

separate paragraph, even if only one sentence long. (it is a summary of all of the above!)

The format of the survey ensured that some of the most important questions were answered before completion of the survey. At this point we are still analyzing the results from the survey, but as shown by the statistical analysis we have thus far, we hope to determine some trends in both awareness and in use of the resources provided by the mandatory fees. We can infer that some resources are more utilized than others by the questions asking to recognize certain resources.

The questions that require respondents to provide amounts for each fee if aware, further help analyze the range of awareness by comparing actual amounts and answered amounts. In this particular type of question some respondents skipped the question, although they had previously confirmed their awareness. The missing data that will result from this question will be analyzed in different ways during our post survey processing, by comparing the results from both imputing values and treating the missing values as legitimate answers. The questions regarding use will also allow us to see if the mandatory fees have a legitimate basis. The project yielded a higher than expected response rate which will greatly aid our results.

As we continue analyzing the results from the survey we will determine other strengths or weakness from our research project. Since the student's participation in deciding how to allocate the mandatory funds is limited by institutional constraints, it is interesting to see not only if they are aware of them but if they actually utilize the given resources. We hope that with our research project results decision making entities, such as the Carnegie Mellon Student Senate, can better allocate the funds from the mandatory fees according to the usage and awareness.

This is a great start

please use my comments above to improve yuor final draft; and of course I look forward to the other analyses you are planning

Please include a "References" section. To see how to format a list of references or sources at the end of the paper, please see section on constructing a list of references at http://writing.wisc.edu/Handbook/DocAPA.html

Please include an appendix or appendices as indicated in lecture 20, week 10.

This might be the sort of thing worth sharing with the Tartan?