

**Final Project Paper**

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STAT 310

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## **Abstract**

In the Fall of 2022, a survey was conducted at Truman State University to ascertain how transfer students feel about the customer service at Truman, in addition to their experience with the transfer process. Statistical tests were run on the data and models were created. Evaluation of the survey results identified that the library was the best overall department on campus and transfer students were less than satisfied with their experience with the residence life department. The most significant factors influencing overall rating for the departments were how accessible they were and how effective the department was in resolving problems transfer students were experiencing. Further analysis of the data discovered that transfer students found it easy to meet people, but did not find the transfer events very helpful. Additionally, a majority of transfer students feel supported by Truman's faculty/staff and are comfortable sharing their needs with their admission counselor, but prefer in-person meetings rather than zoom/phone calls. The results of this survey will be used to help improve the customer service experience and transfer process for transfer students.

## **Introduction**

The basis for our project was to gauge the level of satisfaction transfer students had with the customer service of the admissions office at Truman State University. Our client for this project was Carrie Riley, an admissions counselor at Truman who specializes in transfer student recruitment. We had an initial meeting with Carrie to figure out what she wanted to find out about the transfer student process. While we agreed we wanted to find out how the admissions office did with transfer students, it was decided that other departments and offices were also included in the full transfer student process. In addition to the admissions department, it was decided we would also ask about the customer service of the registrar's office, the financial office, residence life, library, and the Center for Academic Excellence. Carrie gave us a few other ideas and questions she wanted to ask, but gave us a lot of free reign on the project.

There are a few reasons why we are trying to find how transfer students feel about the customer service of various departments at Truman State. The first is so departments know if they need to focus more time and energy on transfer students or not. The second reason is so we know what transfer students need to feel supported by the university. The third reason is so transfer students feel comfortable enough going to these different departments and asking for help. To feel comfortable students need to feel supported by their surroundings, and that starts with who they talk to and interact with, i.e. university administration. So, by these departments improving, the goal is for students and transfer students to feel comfortable sharing their underlying needs with the various departments on campus.

For this project it was assumed that only transfer students would be taking this survey. A few more assumptions were made after the data was collected. Those will be explained later. The data was sourced from our survey. To conduct the survey we created a multi-section survey using a survey instrument called survey.truman. Only one data set was used. The raw data from the survey was cleaned and then used for statistical analysis and graphical modeling. The people who should pay attention to our results are the admissions office, any other office that deals with transfer students on campus, and the Truman State University administration.

## **Methods**

To acquire the data we created an online survey using survey.truman. This survey had a multitude of questions aimed at transfer students. These questions focused on the customer service transfer students feel they have received from the Admissions Office, Registrar's Office, Residence Life, Financial Aid Office, Center for Academic Excellence, and the Library. These questions all had a Likert scale of numbers 1-5 that measured how effective they were with promptness, responsiveness, polite/respectful, accessible, effective problem solving, clear/clarity, and overall rating. Other questions that were asked were aimed at how transfer students felt about their experience with other individuals at Truman State so far. These were also graded on a Likert scale of 1-5. The final questions were demographic, just so we could get a sense who was responding to our survey. Once our survey period was completed, we went to clean the data.

Not much was needed to clean the data. There were three things done to clean the data. The first was changing the variable/column names to something that was more friendly to use while coding and more clean while viewing. The second item was very small but it was deleting one row of data because there were no entries in it. This was done because we didn't want to have a blank row in the dataset. This was likely due to someone having opened the survey but not finishing it, and that information is not needed. The final task to clean the data was creating another row that calculates the average of each column for the department questions. The reason not much data cleaning needed to be done was because many questions were already in Likert form. To streamline this process, aliases were coded into survey.truman for multiple questions to make them numerical values instead of categorical. This was done so that ANOVA statistical tests could be done. So, it can be seen that not much cleaning needed to be done because much of it was planned for and taken care of prior to the data being collected. Once the data was cleaned it was ready to be imported into Minitab so that analysis could begin. This analysis included statistical analysis and graphical modeling.

## **Results**

For the survey, 52 transfer students responded out of the 648 that received it, that means there was an 8.02% response rate. When we began looking at the results of our survey we started looking at the basics. However before we could begin, it was brought to our attention while the survey was active that not everyone who received the survey was a transfer student. We learned that Truman State University considers anyone who brings 30 or more credits to Truman as a transfer student. Therefore, if someone took 30 college credits or more in high school and transferred them to Truman, they are considered a transfer student. Consequently, many high-achieving students who came to Truman straight out of high school got the survey even though they have never truly attended another higher education institution. The email list that we received included these individuals. This does have an impact on our data because we want to know how traditional transfer students feel about customer service they received during their transfer experience. Because we could not do much about this issue we went ahead with our analysis as normal, but with the knowledge that our results could be affected.

Going back to our results, Carrie Riley had a few specific things she wanted to know, and we went ahead and made visuals for them. The first graph we made was a histogram showing the count of how comfortable students are with sharing their needs such as housing, financial, academic, etc. with their admissions counselor. Figure 1 shows this.

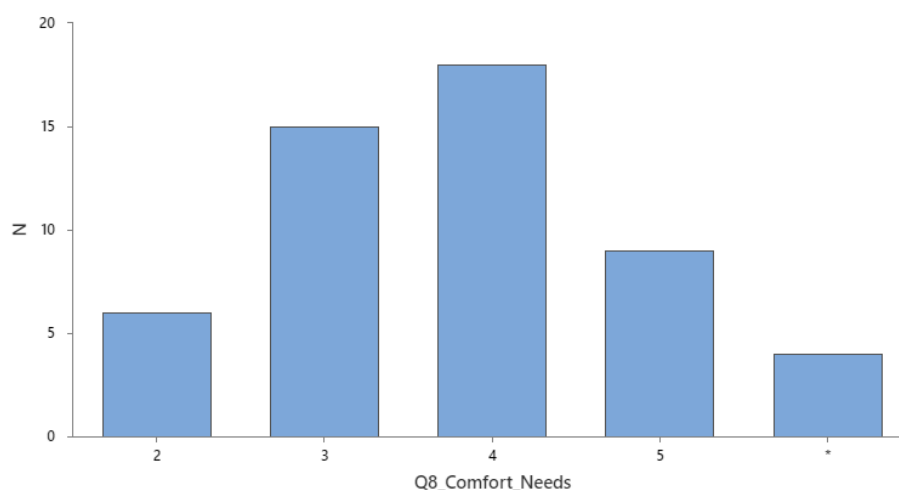


Figure 1

The asterisk shows survey takers who did not respond to this question. The answers for this question were on a Likert scale from 1-5. 1 being not comfortable to 5 being extremely comfortable. The distribution for this graph is skewed to the left, meaning most of the survey respondents feel comfortable sharing their needs with their admissions counselor. The second chart that was made considered how transfer students feel how easy it is to meet people. Figure 2 corresponds to this.

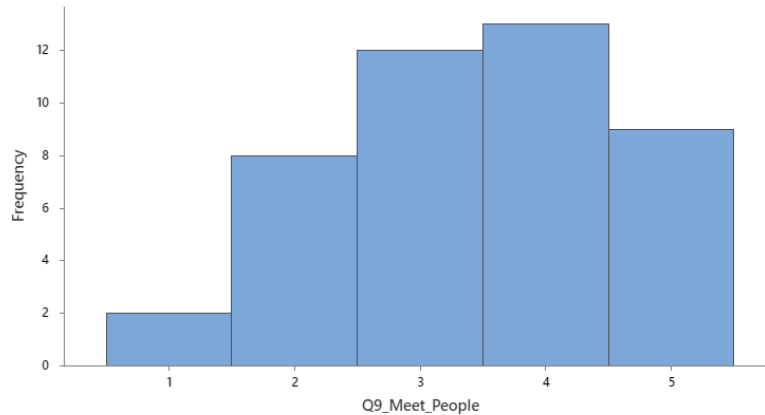


Figure 2

Again the responses were on a scale from 1-5, 1 being not easy to meet people to 5 being very easy to meet people. This graph is slightly skewed to the left meaning the majority of transfer students feel it was easy to meet people when they got to campus. The third graph made was for how helpful the transfer students events were for transfer students. Figure 3 shows this chart.

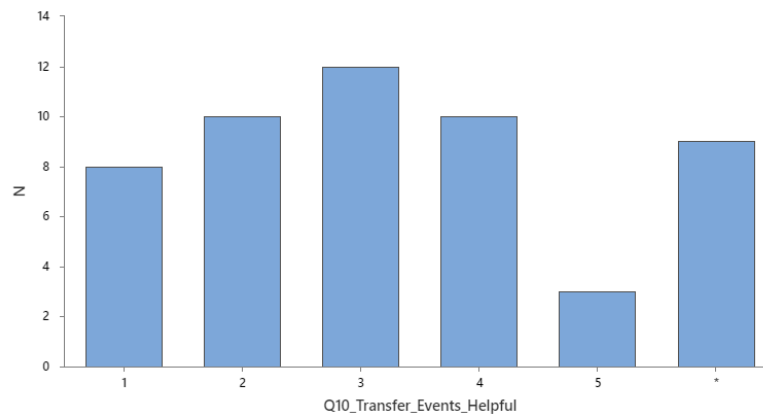


Figure 3

The nice thing about this chart is the asterisk shows survey takers who didn't answer this question. We can assume the students who did not answer this question were the students who were considered transfer students but are not really transfer students. They likely did not answer this question because they never attended any transfer student events. As for the rest of the results, the graph has a normal distribution with a slight skew to the right. This means more respondents felt the transfer student events were not very helpful. The fourth graph made was of how supported transfer students feel by faculty/staff. The chart for this is of figure 4 below.

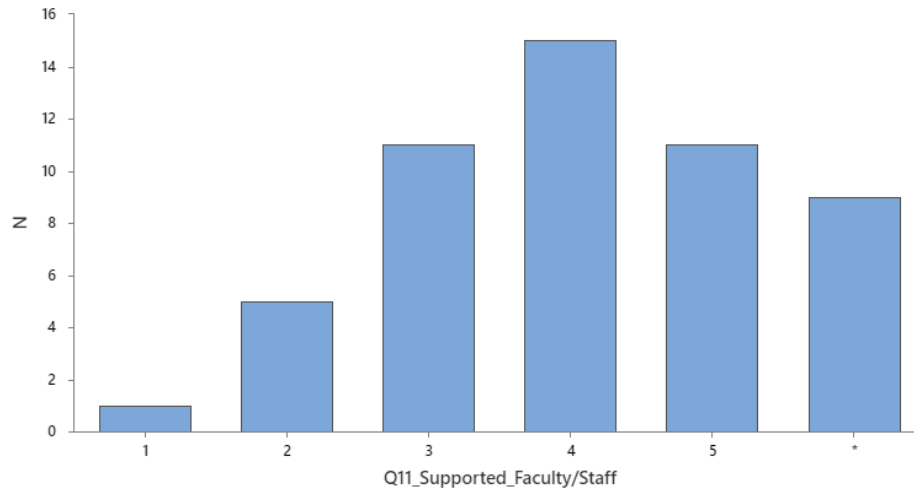


Figure 4

The distribution for this graph is skewed fairly heavy to the left. This implies that many transfer students feel supported by faculty/staff. One thing to note is there are a large number of survey takers who did not respond to this question. That is troubling because we do not know if the results we found are a true representation of how supported transfer students feel they are supported by faculty/staff. The question specifically asked about transfer students, so it can be assumed the people who didn't answer are in the non transfer student group. The next graph made was if the survey taker had an AA or an AS degree. Figure 5 corresponds to this chart.

#### Do you have an associate degree?

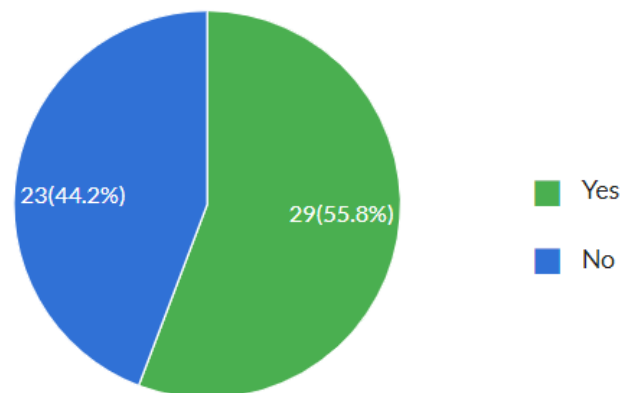


Figure 5

We can see that more respondents had an AA degree than not. However, since we had some students who have never attended another institution, the true No value could be much smaller because if they never attended another institution then they would not have an AA degree. Knowing this, the majority of transfer students have an

AA degree coming into Truman. The next question asked and corresponding chart made was asking if transfer students knew where to go for help and support for financial, academic, and other concerns. Figure 6 is below and shows this.

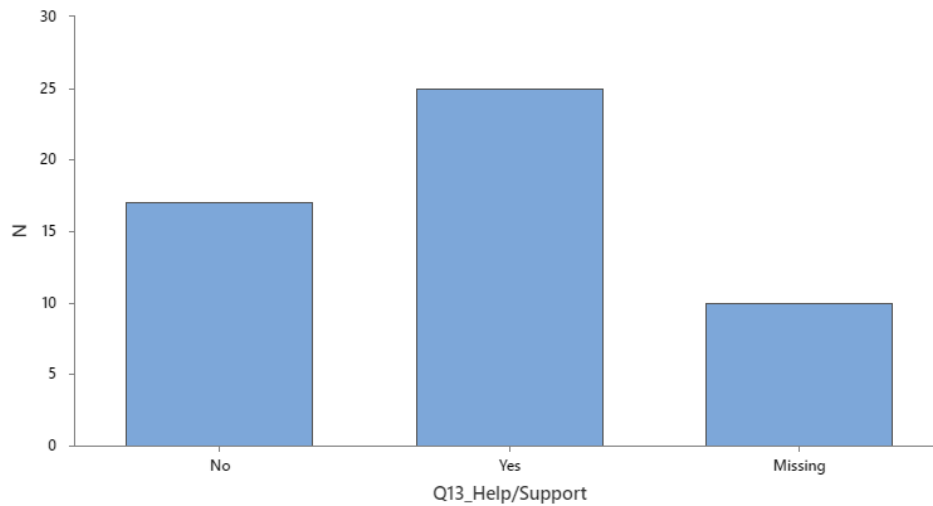


Figure 6

The results from this show about 20% more transfer students knew where to go for and help/support. The university would probably like to have more transfer students know where they should go when issues arise. So this is an area that could be improved.

Another scope we wanted to investigate was what year/grade-level students transfer into Truman at. Truman classifies students by the following designation: class level is based on the number of credits earned to include credits transferred into Truman: freshman (0-29 credits), sophomore (30-59 credits), junior (60-89 credits), senior (90 credits and above). As shown in figure 7 below, nearly two-thirds (62.5%) of transfer students come in as a junior. This makes sense considering 55.8% of transfer students said they have an associate degree because many transfer students are coming from a community college where most earn an associate degree. Therefore, it is reasonable that a majority of students transfer into Truman as juniors.

### What grade-level/year did you transfer to Truman as?

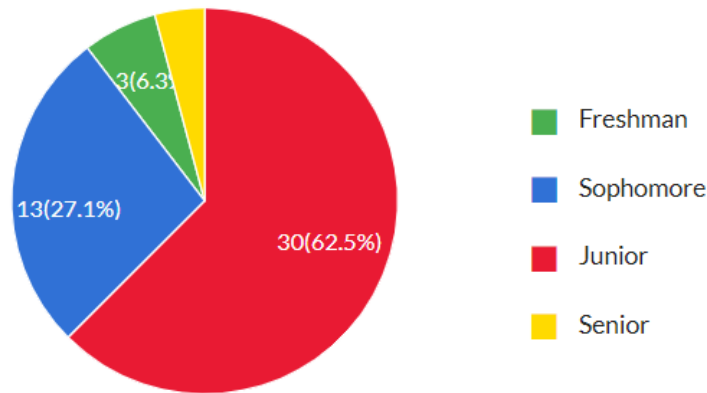


Figure 7

The final basic question we answered for Carrie was what transfer students preferred more, in-person meetings or zoom/phone call meetings. The chart for this is of figure 8.

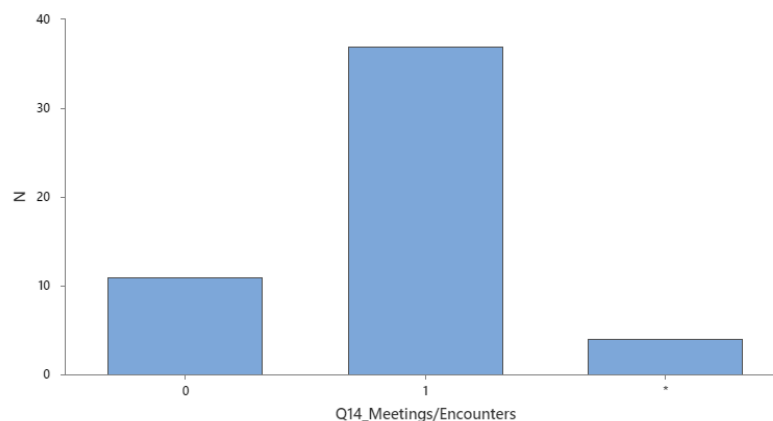


Figure 8

The zeros on this graph mean respondents prefer zoom/phone call meetings, ones mean they prefer in-person meetings, and the asterisk again means they did not answer this question. As it can be seen, there is a resounding amount of transfer students who prefer in-person meetings over zoom/phone call meetings. To get more detailed graphs there were a few interesting connections that could be made. The first was the relationship between the length of time the student was at Truman and their level of comfort with sharing their financial, academic, or housing needs. Figure 9 answers this question.



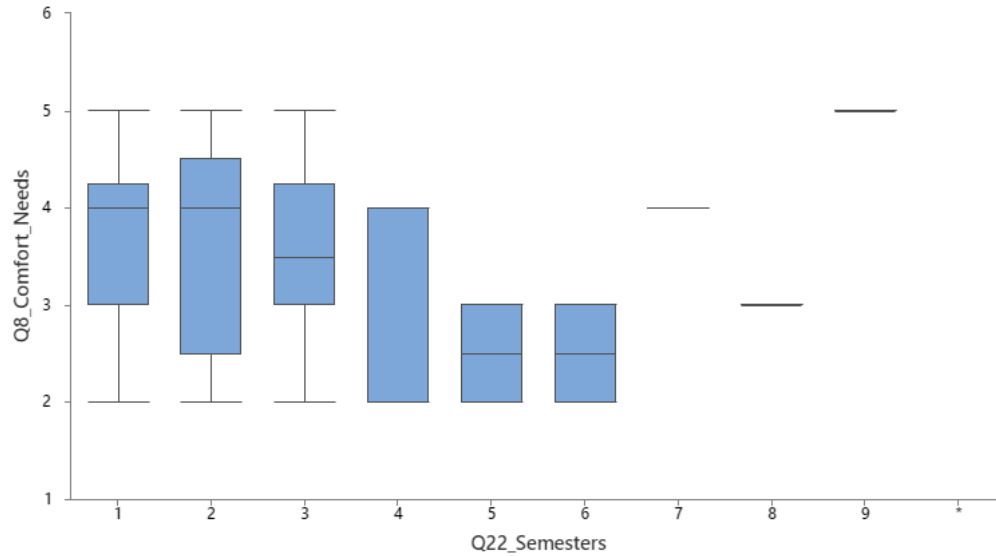


Figure 9

Based on this boxplot distribution, it actually looks like the longer a transfer student has been at Truman the less comfortable they feel sharing their needs. Another interesting question is if students with an AA degree feel more supported by faculty/staff. Again figure 10 below answers this question.

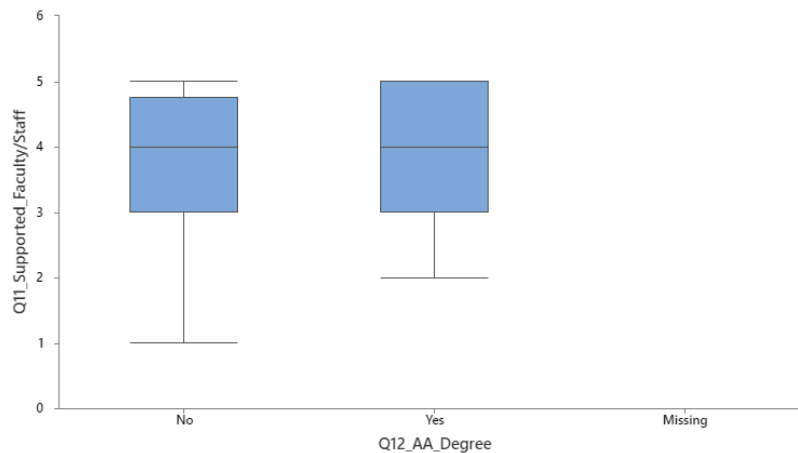


Figure 10

As it can be seen from the graph, there is not really any difference between if students feel they are supported by faculty/staff and if they have an AA degree or not. Statistically we ran an ANOVA which supported this result.

### Analysis of Variance

Source	DF	Adj SS	Adj MS	F-Value	P-Value
Q12_AA_Degree	1	0.0026	0.00264	0.00	0.962
Error	41	47.0671	1.14798		
Total	42	47.0698			

Figure 11

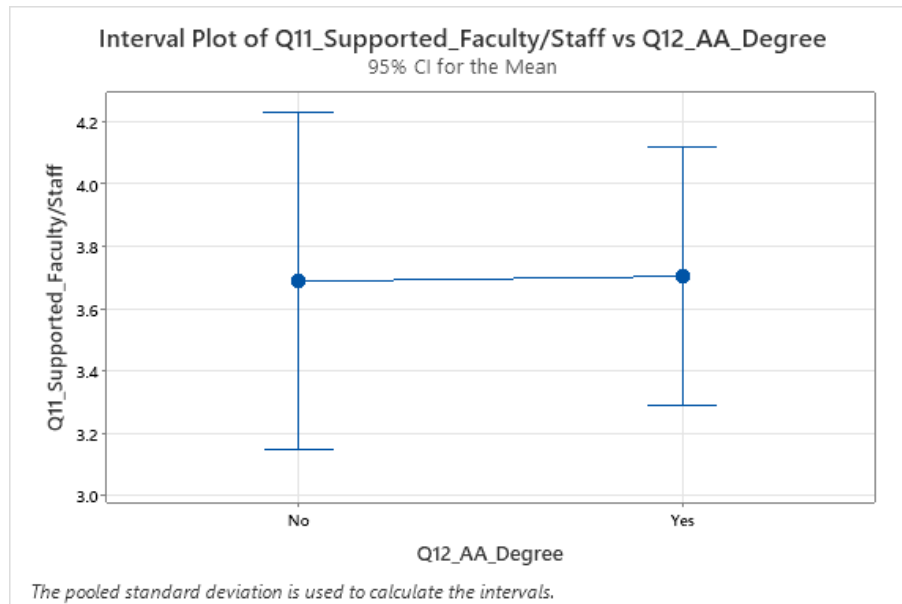


Figure 12

The p-value for this analysis was 0.962 which is much greater than the 0.05 threshold. This means there is no significant difference in how supported transfer students feel from faculty and staff if they have an associate degree or not. One more interesting question we can answer is if gender plays a role in how easy it was to meet people at Truman. Figure 13 visualizes this.

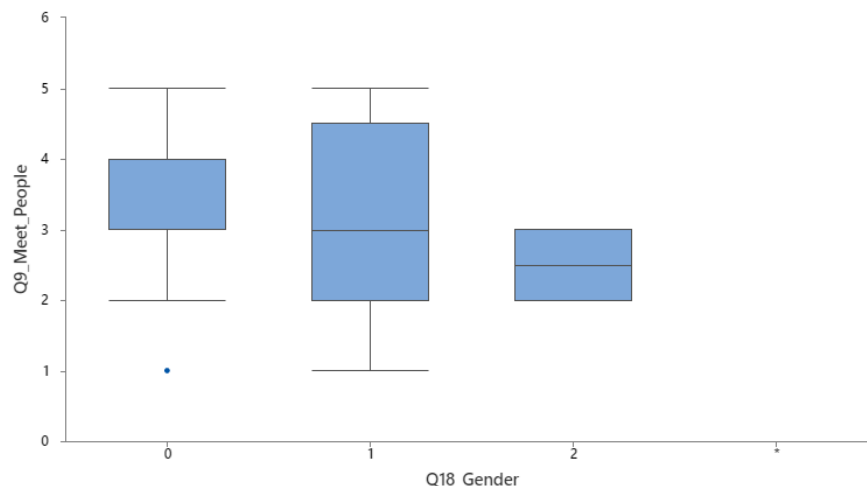


Figure 13

The gender numbers are as follow, 0 being a male, 1 being a female, and a 2 being non-binary. Out of the 52 respondents to our survey, 18 were male, 31 were female, and 2 were non-binary. One person decided not to answer this question. So, we had more female respondents than male. Back to the boxplot, there is not a large difference between males and females and how easy it was to meet other people. The females had a larger range, but both groups had the same median. However, the non-binary group seemed to have a harder time meeting people, although there were only 2 non-binary survey respondents, so this doesn't show much hard data. After running an ANOVA on this data, the rough conclusions drawn from the graph still hold up. Figure 14 shows these results in more detail, including the p-value of 0.375, much larger than the rejection region. All these more detailed graphs showed things of interest to us. Now to move onto the customer service aspect of this survey.

### Analysis of Variance

Source	DF	Adj SS	Adj MS	F-Value	P-Value
Q18_Gender	2	2.653	1.327	1.00	0.375
Error	41	54.142	1.321		
Total	43	56.795			

Figure 14

The main reason for executing this survey was to find out how transfer students felt about their customer service during their transfer experience at Truman. Graphs were made for six departments and offices. These included the admissions office, the registrar's office, the residence life department, the financial aid office, the center for academic excellence, and the library. The analysis starts with the admissions office below.

Average Response Rating for Admissions Office

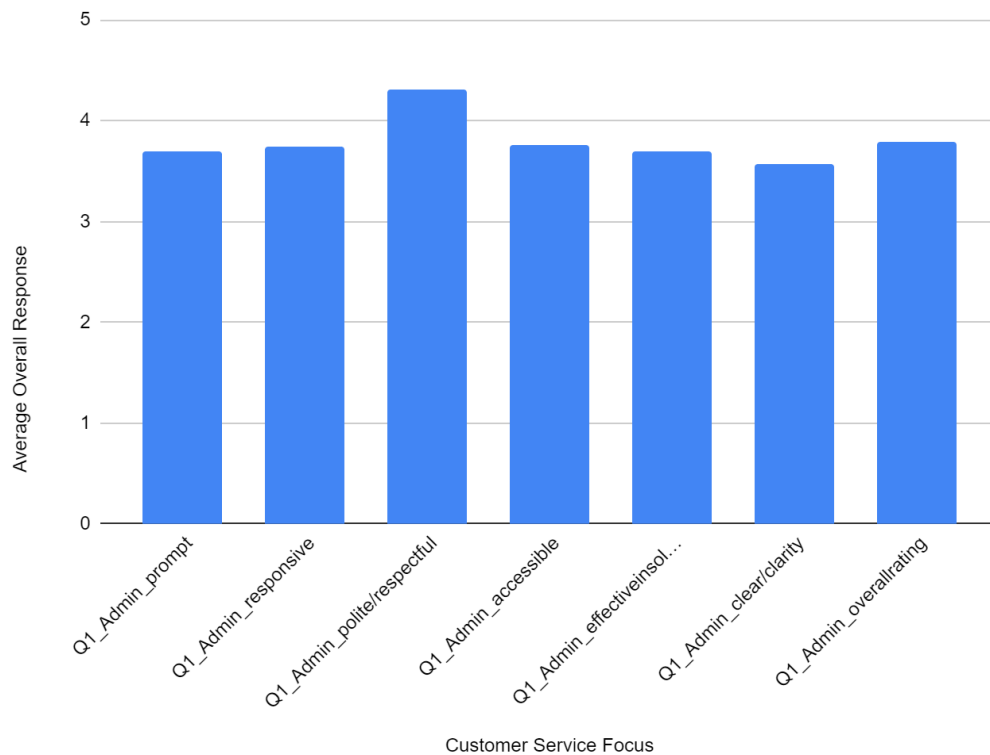


Figure 15

The admissions department as a whole did a pretty good job with transfer students. The area they excelled in most was how polite and respectful they were. They had an average of 4.3 out of 5 in this category. The area they could improve in most was how clear they were on what the tasks the students needed to complete for admission. While they had an average of 3.57 out of 5 in this focus, there could still be improvement. The overall rating for the admissions department is 3.78 out of 5. The next office that was looked at was the registrar's office.

Average Response Rating for Registrar's Office

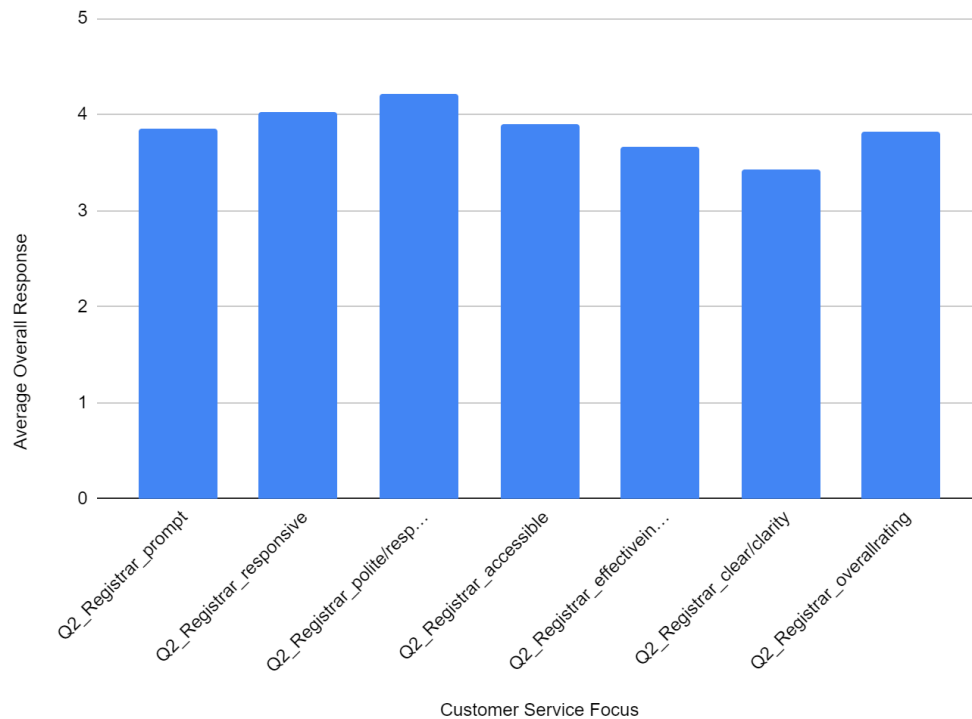


Figure 16

The Registrar's office overall did a decent job with transfer students compared to the other offices and departments. Like the admissions department, the area they excelled in most was how polite and respectful they were. They had an average of 4.02 out of 5 in this category. Again like the admissions department, an area they could improve in was how clear they were on what the tasks the students needed to complete. This focus had an average of 3.42 out of 5, so there could still be improvement. The overall rating for the Registrar's office is 3.82 out of 5. Next up is the residence life department.

Average Response Rating for the ResLife Department

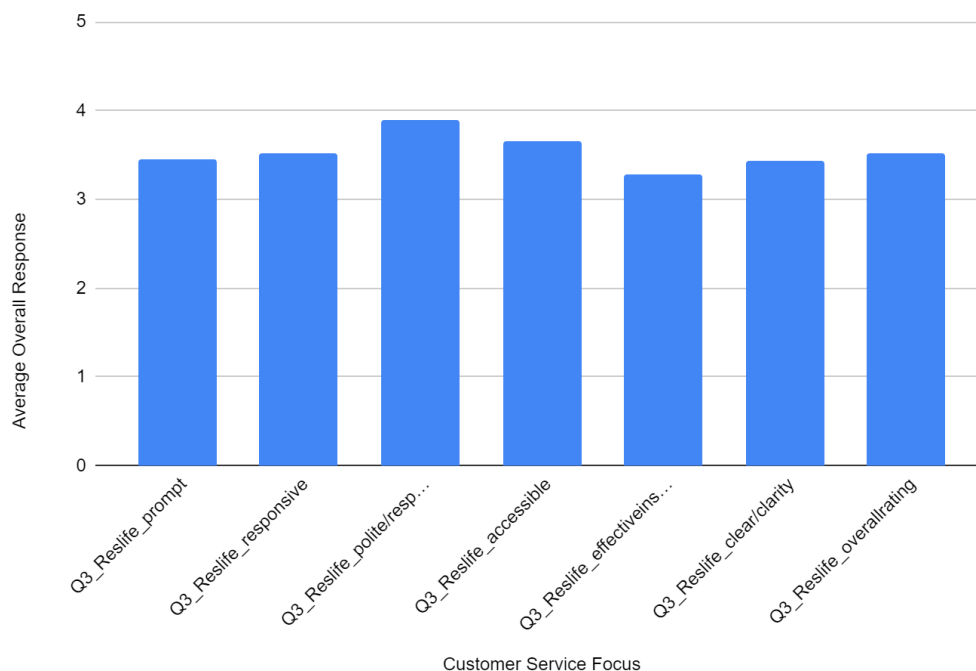


Figure 17

The residence life department did the worst working with transfer students compared to every other office and department. Like the two previous departments that have been examined, the area the reslife department excelled in most was how polite and respectful they were. They had an average of 3.88 out of 5 in this category. They could improve in just about every area, but a focus they could improve on was how effective they were in problem solving transfer student's issues that arose. This area had an average of 3.28 out of 5, so there could be a lot of improvement. The overall rating for the residence life department was 3.51 out of 5, the worst out of all the departments. One thing to think about is that not all transfer students live on campus and deal with the residence life department. 17 out of the 52 respondents (or 33%) gave no answer to any of the residence life questions. We can assume these 17 respondents live off campus and had no interaction with the residence life office. Also, because those respondents didn't answer any of the questions, the data for the residence life office is still accurate. This means the data displayed is not lower due to non-respondents, the only data used was of respondents who answered the questions. All these items are good to be aware of in regards to the residence life office. The next office up is the financial aid office.

Average Response Rating for Financial Aid Office

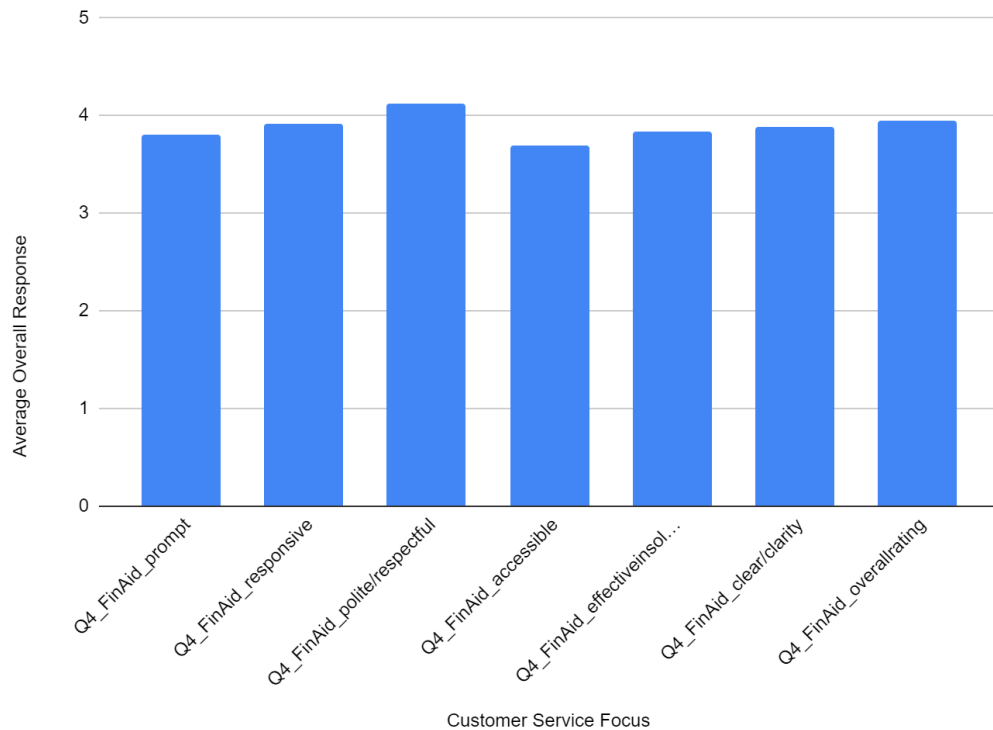


Figure 18

The financial aid office as a whole did a good job with transfer students. Like the other departments, the area they excelled in most was how polite and respectful they were. They had an average of 4.11 out of 5 in this focus. Differing from other departments, an area they could improve in was how accessible they are to transfer students. This area had an average of 3.7 out of 5, which means there is room for improvement. The overall rating for the financial aid office is 3.95 out of 5, tied for the second highest of all the departments surveyed. Second to last is the center for academic excellence which is below.

Average Response Rating for the Center for Academic Excellence

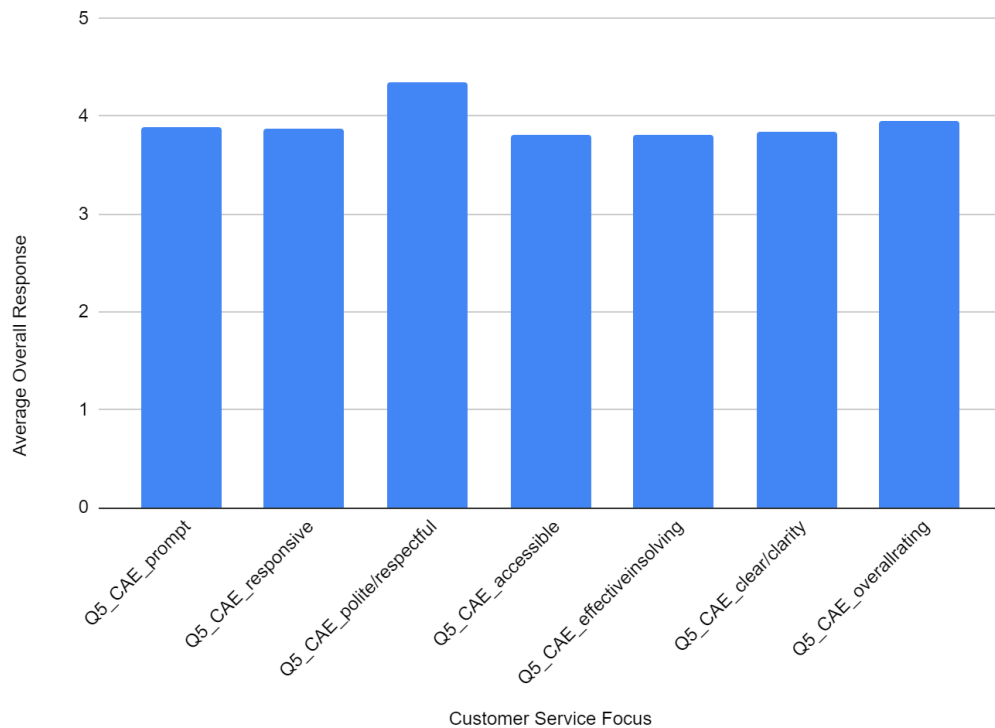


Figure 19

The center for academic excellence did well across the board with transfer students. Again like the other departments, the focus they excelled in most was how polite and respectful they were. They had an average of 4.34 out of 5 in this focus. The CAE did well in almost every area compared to the other departments. However, the two lowest focuses were how accessible they were and how effective they were in problem solving issues with transfer students. These areas both had an average of 3.82 out of 5. The overall rating for the center for academic excellence is 3.95 out of 5, tied for the second highest of all the departments surveyed. The last department surveyed was the library.



Average Response Rating for the Library

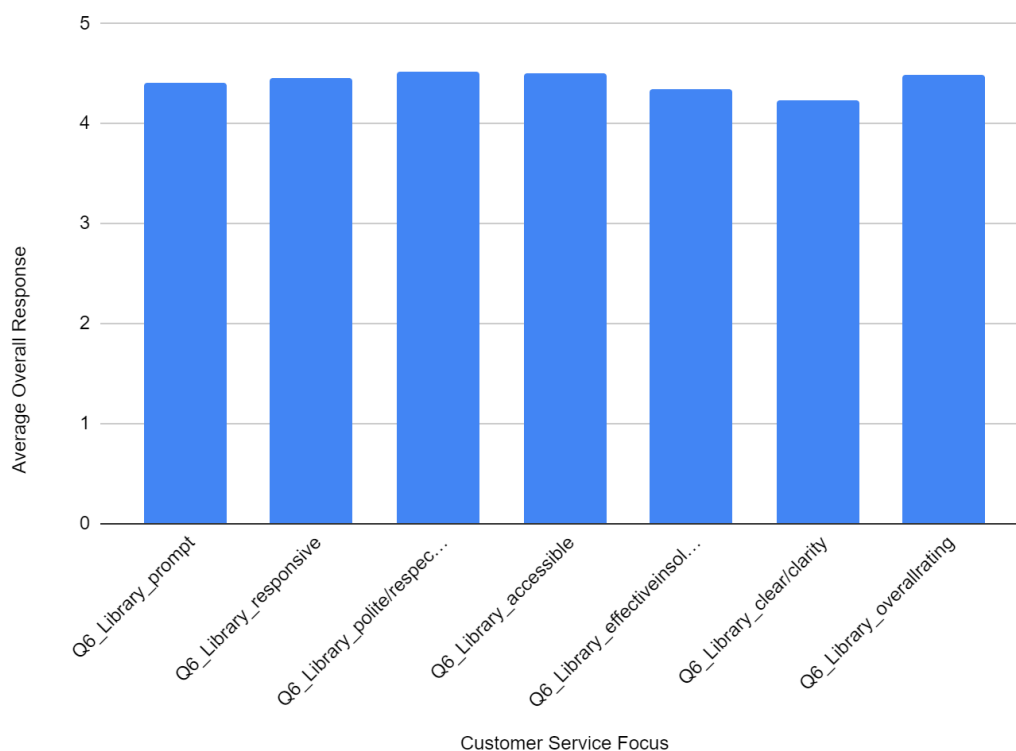


Figure 20

The library did the best with transfer students out of all the departments. The library had high scores for every area. How polite and respectful they were had a 4.52 out of 5. How accessible they were had a 4.5 rating out of 5. Overall rating also had a 4.49 rating of 5. All very good numbers. Even though clarity of the library had a good score of 4.24 out of 5, it was an area they could relatively improve in.

After examining the areas where different offices excelled, the next step was to look at the significant factors that impacted the overall rating. For each of the offices, a stepwise elimination on a linear regression was run to determine the significant factors for each department. The parameters used were an input p-value and an exit p-value of 0.15, giving between 2 and 4 factors for each department. Some common factors emerged, with the effectiveness of problem solving and the accessibility of each office having the most widespread effect.

The last thing that was checked was if the gender of transfer students had any impact on the overall rating of the admissions office. Ideally, there would be no significance for this factor, as the admissions office should be treating the students the same regardless of gender. The results of the ANOVA test run showed that there was not any significant data to show any disparities between the male and female transfer students. Figure 21 shows the results of the admissions office ratings when divided by

gender. Since the p-value is larger than the rejection region of  $p < .05$ , there isn't significant evidence to show any differences.

### Analysis of Variance

Source	DF	Adj SS	Adj MS	F-Value	P-Value
Q18_Gender	2	1.938	0.9689	1.46	0.243
Error	42	27.840	0.6629		
Total	44	29.778			

Figure 21

## Discussion

There were many positive results from this survey, but there were some specific places where improvements could be looked at. Since the primary purpose of this survey was to determine the ways that the admissions office could improve the experiences of transfer students during their time at Truman, those are the areas that will be focused on first. Initially, the distribution of students and how comfortable they are sharing their needs with their admissions counselor seems fine. It roughly follows a normal distribution; however, ideally more students would be comfortable sharing their needs. This is not the easiest issue to address, as there could be a multitude of reasons for why students do not feel comfortable sharing their needs. Several potential solutions, however, could be to put more of an emphasis on asking follow up questions, or perhaps to find some frequently asked questions to address more specifically during the communication processes.

The next area for direct improvement was the transfer events. According to the survey results, shown in Figure 22, they were not the most helpful for students. Again, this distribution looks fairly normal (although there is a significant chunk of students who chose not to respond to this question). One troubling issue when looking at this graph is the very low number of students that thought they were "very helpful". This shows that the transfer events were fine, and many students thought they were helpful, but they did not have any overwhelming impact on more than a few students. The events themselves could easily be tweaked to directly impact more students. However, if the premise of the events themselves simply do not have much upside, they could be looked at more closely to see if removing them and potentially adding some other type of event in its place could make more of an impact. One more area for further research could be to see what specifically about the events led to these ratings, to see what course of action would be ideal to maximize the benefit to incoming transfer students.

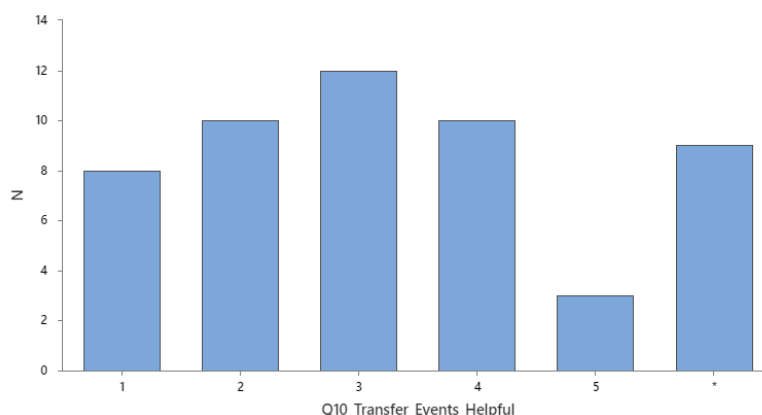


Figure 22

The final thing that showed a large area for improvement was the data showing that the longer a student is at Truman, the less comfortable they feel sharing their needs. Likely this is the easiest area for improvement, as this could be explained by the students having less contact with their admissions officers after they have been admitted and settled. One option for further consideration would be to decide if this is ultimately important, as likely the longer transfer students are at Truman, the less they lean on the admissions office and the more they behave and feel like a student who has exclusively been at Truman.

There were also several strengths of the department that were shown by the survey. One of these was the ease with which transfer students were able to meet other people. There was a relatively strong bias in the data towards having an easier time meeting other students, showing that the transfer department did a good job with this aspect of the transfer process. It would be productive to look further into what specifically fostered this connection, so that any changes that are made with the department's policies and plans would only positively impact this. Another positive set of data to come out of this survey was the way transfer students were treated by faculty and staff. This data, shown below in Figure 23, shows a distribution centered around a 4 on the scale of 1-5. Now, there is a large portion of the responses who chose not to respond to this question, which could mean a variety of things. If you ignore those NA responses, though, the distribution shows good signs of faculty and staff being nice to transfer students. One interesting comparison could be between the transfer student group and the general population of students, because although the distribution for transfer students is good, it might be significantly different from the other groups of students. Determining this could help to determine if a different approach needs to be taken to correct any biases that could be present towards students transferring into Truman.

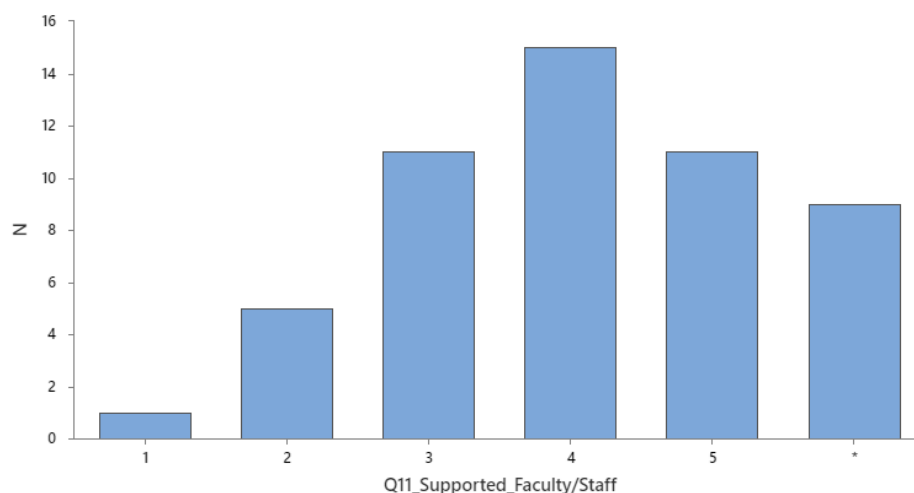


Figure 23

There were several insights into the customer service of the admissions office when dealing with transfer students, and overall there were more positives than negatives. As transfer students are a group unlike any other at Truman, this is a net positive, so long as steps are taken to maintain strengths and improve weaknesses.

Comparing the results of how transfer students feel about the six departments in the survey also took place. Each office/department was analyzed and given an area they are doing well in and an area they could improve in. As Figure 24 shows, the following departments are ranked best to worst based on transfer students' overall rating: the library, the financial aid office, the center for academic excellence, the registrar's office, the admissions office, and residence life. The admissions office should work on every focus to improve their overall rating, but they should focus on the clarity with what transfer students need to do to complete the admissions process. Also, the admissions office should work on communicating with the student, letting them know what they need to do next. In addition, they could also improve in communicating with the other departments letting them know when a student has been accepted for admission. This would allow the other departments to reach out to the transfer student and get everything rolling. The residence life office could also improve in a lot of areas to improve their overall rating.

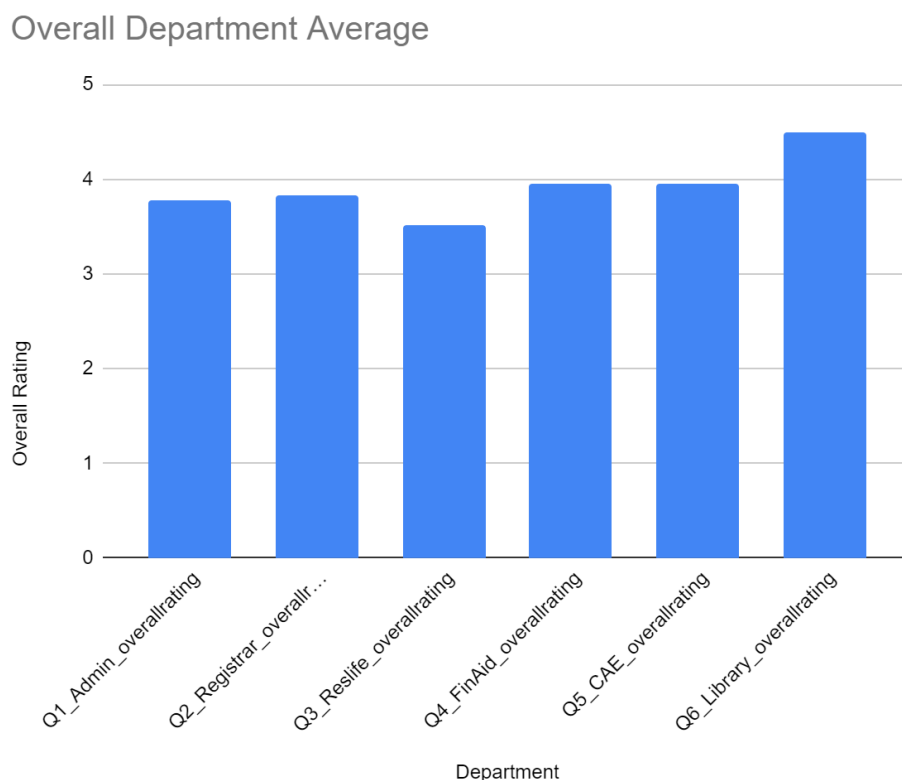


Figure 24

Taking a look further into the results for each department, there were several important trends to take note of. As shown in Figure 25, there were several very common factors. The effectiveness of each department of solving problems and the accessibility were the two most common significant factors when predicting the overall rating. Therefore, these were the broadest topics that students cared about the most. There were several office specific cares, however, with the promptness of the admissions office being the only department that had promptness as a significant factor. This could be for a variety of reasons, but it is significant enough for the admissions department to want to take a look at it. The other department that had an outlier factor was financial aid, which had clarity as a significant factor. This is again the only department that had this factor be significant, which likely is due to the monetary nature of this office.

Departments	Accessible	Clear	Effective	Prompt	Polite/Respectful	Responsive
Admission	1	0	1	1	0	0
CAE	1	0	1	0	1	1
Financial Aid	0	1	1	0	0	1
Library	1	0	0	0	0	1
Registrar	1	0	1	0	1	1
Reslife	1	0	1	0	1	0
<b>Grand Total</b>	<b>5</b>	<b>1</b>	<b>5</b>	<b>1</b>	<b>3</b>	<b>4</b>

Figure 25

Besides looking at each of the factors and how they influence the overall rating of each department, some open-ended questions were included in the survey as our group wanted to get some individuals' perspectives on how to improve the offices. The first open-ended question we asked was "Do you have any expectations for the offices/departments (frequented service) and/or what do you want the offices to improve on?" Several of the respondents replied saying they would like to see departments reply to their emails quicker. For this reason, our group recommends departments focus on and make an effort to increase their response time to students' emails.

Another open-ended question that was featured in our survey was whether it was clear what needed to be completed on TruView in order to complete the transfer process? The majority of respondents responded "Yes" indicating they thought TruView was easy to navigate and use. So, while things can always be improved, TruView is very functional in its current form.

The last two open questions asked in our survey were "How did you hear about Truman?" and "Why did you choose to attend Truman?" A large number of respondents said they heard about Truman from friends and family, high school teachers, and alumni. As for why students chose to attend Truman, many students replied that it was affordable, reputable, offered their degree program, and preferred the smaller nature of the university. One respondent said "Truman has good academic standings, it is fairly affordable, and it had a masters degree in my program." Accordingly, one can conclude that students choose to attend Truman because of its low-cost, prestige, small size, and degree programs offered. Likewise, students learned of Truman from friends, family, high school teachers, and graduates, which suggests that Truman is a favorable university.


While each department has their own individual focuses for what they might be able to improve upon the most, and each department has their own level of improvements that need to be made in regards to transfer students, this survey gives a lot of clarity to where these improvements can be started. Any future surveys might want to focus on more specific improvements that could be made for each office. Likely a survey like this would be undertaken by the specific office, attempting to figure out exactly what steps might be needed to increase the overall perception that students have of the office.

## References

Survey Link:

<https://survey.truman.edu/surveys/CE9FF3E3-D69A-4C75-805D-DA1D2FCADAC4?test=true>

Raw Data Link:

 Stat 310: Group Project Raw Data

<https://docs.google.com/spreadsheets/d/1c5KaZVkTyczRLIKKbKT0GA5BnWW3c2HrEdH5H8t8ALw/edit#gid=0>

Cleaned Data Link:

 Stat 310: Group Project Cleaned Data

[https://docs.google.com/spreadsheets/d/15pTbUsEsLYXk9nO33iRCMQ0IS7Oy\\_rxk\\_T6uZnSgBaw/edit#gid=1894471287](https://docs.google.com/spreadsheets/d/15pTbUsEsLYXk9nO33iRCMQ0IS7Oy_rxk_T6uZnSgBaw/edit#gid=1894471287)

Minitab Statistical Software: Version 21.2 (64-bit)

Google Sheets 2022