

ECAR Student Survey Analysis

Saint Cloud State University

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Introduction

The purpose of this project is to analyze the results from the ECAR student survey. The survey was created by the Education Center for Analysis and Research (ECAR), a program by Educause to explore technology ownership, use patterns and expectations as they relate to the student experience. With the results, institutions will be able to identify what technology students need to better engage students in the learning process and remain competitive with other institutions.

Working with the Data

The survey was composed of seven different sections. Each section ranged from a handful to nearly 50 questions inside a given section. Since there are too many questions to analyze one-by-one, we needed a way to analyze multiple questions at a time. The questions were mostly agree/disagree questions, so indexes were used to manage the large amount of questions. The answers were converted into rankings. The rankings were coded as follows: Strongly disagree a 1, disagree a 2, neutral 3, agree 4, and finally strongly agree was coded as a 5. The sixth option, 'Don't Know', was treated as missing. The indexes contained some of the demographic variables we had in the data that we thought may have different effects. Age, Gender, Credits and Housing were the variables we analyzed. Housing is a categorical variable with two categories: on-campus and off-campus. Credit is a categorical variable with two categories: part-time and full-time. Full-time was classified as students taking 12 credits or more. The indexes allowed us to get an average rank for each category in the variable for that individual question. From there, we could see how each category compared in a question and how the questions compared in that section.

Figure i.1: Example Question

6.3 Thinking about your college/university courses within the past year, to what extent do you agree with the following statements, specifically considering how using technology has been enabling for you? Technology used in my courses has enabled me to...

	Don't know	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
...receive feedback from others right away						
...communicate basic messages						
...understand what other people were trying to communicate to me						
...explain my ideas in specific terms						
...help others learn something from me						
...clearly explain new concepts I've learned to others						
...persuade my classmates why my ideas are relevant to class-related problems or topics						
...use technical or academic terminology correctly						
...explain my thought process from start to finish to others						

For example, *Figure i.1* is a question three from section six. Inside question three, there are nine questions listed. There are three other questions (6.1, 6.2 and 6.4) that form section six. We coded each answer as we explained earlier and calculated an average score for each of the categories in a given variable. We applied this to all the other questions in the sections. From there we can compare the average score between the categories and the questions.

Section one and section seven were composed mostly of demographic questions and were not included in the report. Instead, the variables from sections one and seven were used in sections two, three, four and six.

Section five begins by asking if the student has a physical or learning disability that requires select technologies to complete coursework. If a student marks yes to the question, two more questions appear that ask if the institution is supportive and aware of the technology. Since most of the students marked no to the initial question, there was little data in section five and little to analyze, so we left out section five from the report.

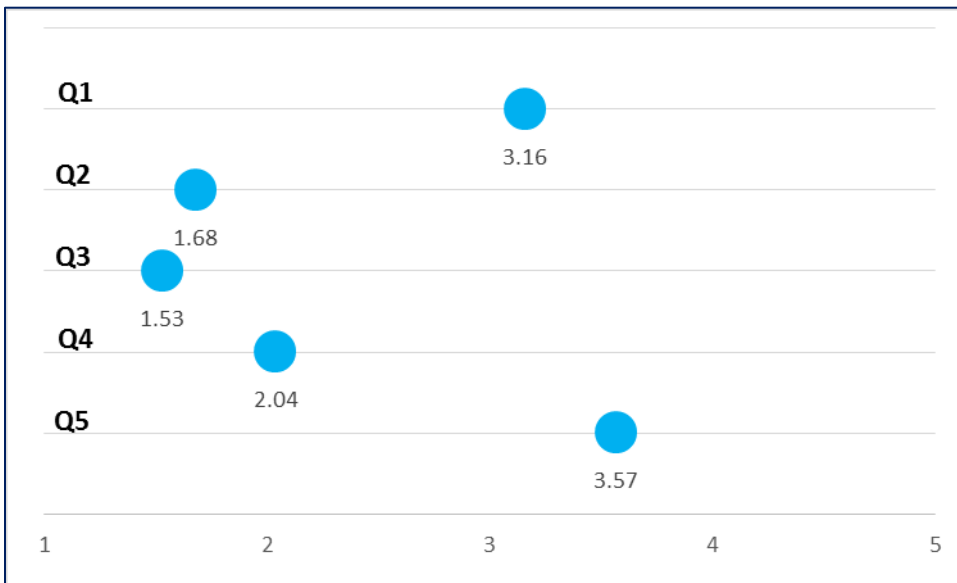
Section 2 – Device Use and Ownership

The second section emphasizes on devices ownership and how devices are used in academic work.

The questions in section two are shown in the bulleted list below:

- The first question asks how many devices are owned. For this question, the student can choose from a list ranging from zero to five or 6 or more.
- The second question asks the type of device owned and other characteristics of the device. Specific options are given and the student choose one that best describe the device owned.
- The third question asks how each device is used in their coursework. For this question, the student selects the most accurate answer from a list of five statements ranging from “did not use at all” to “used for all my course”.
- The fourth question ask how important each device is to the student success.
- The last one asks how important handheld device help the student do academic activities. For the last two question, the most accurate answer is selected from five statements ranging from “Not at all import” to “Extremely important”.

Figure 2.1: Section 2 Question Average



Question one indicates that on average the number of devices owned is three. Question two indicates that students own the same type of devices on average. Question three shows that the devices owned are used in at least one course. Question four shows that devices are important for academic success. Lastly, question five shows that handheld devices are very important for administrative and academic activities.

Figure 2.2: Section 2 Question Average by Age

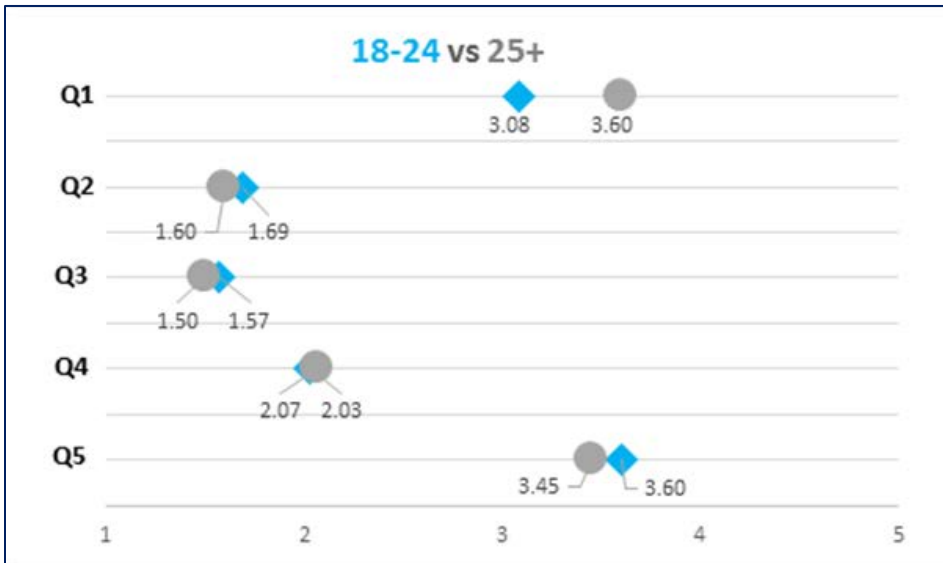


Table 2.1: Section 2 Age Distribution

Age	N	Margin of Error
18-24	300	0.12
25+	58	0.26

A mean comparison was done for the two age groups in all five questions (*Figure 2.1*). Although, the younger group is over-represented (*Table 2.1*), the two age groups show similar means, with an exception for question one. The 18-24 age group said to own three devices on average while, the 25 or older age group said to own approximately four devices on average. The two age groups indicated to own the same type of devices. Both age groups used their devices in at least one course. The 18-24 and 25 or older age groups agreed that not all devices are important for their success. Handheld devices are moderately important for both groups.

Figure 2.3: Section 2 Question Average by Gender

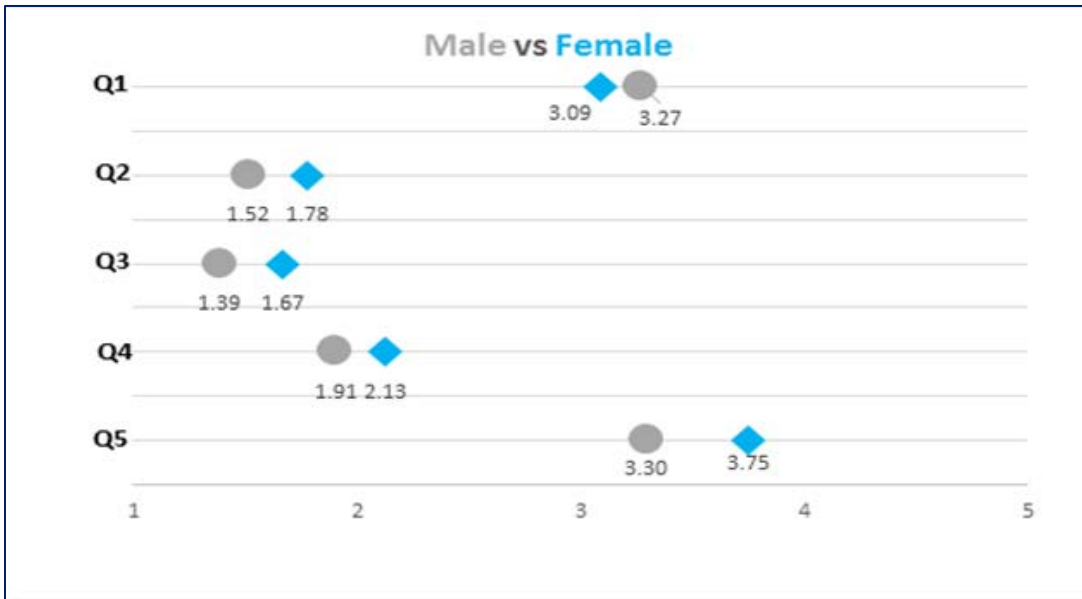


Table 2.2: Section 2 Gender Distribution

Gender	N	Margin of Error
Male	214	0.14
Female	144	0.17

The same mean comparison was also done for gender (Figure 2.2). Males and females show some differences. The means for males tend to be lower, except for question one. Also, notice that the number of students is evenly distributed for gender (Table 2.2). Males and females said to own three devices on average. The two genders indicated to own the same type of devices. Both males and females used their devices in at least one course. The two groups said that not all device are important for their success. Handheld devices are moderately important for both groups.

Figure 2.4: Section 2 Question Average by Housing

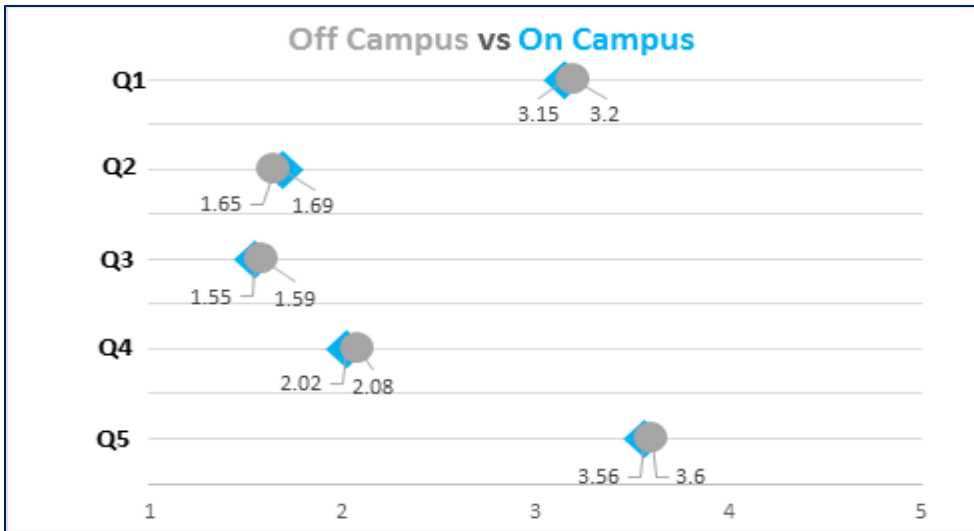


Table 2.3: Section 2 Housing Distribution

Housing	N	Margin of Error
On-Campus	93	0.21
Off-Campus	265	0.12

A mean comparison was also done for the two types of housing (Figure 2.3). All the questions except question two show the off-campus group having higher means. The two groups, off-campus and on-campus groups are in agreement on all the questions. Both groups said to own three devices on average. They also indicated to own the same type of devices, and to have used their devices in at least one course. On-Campus and off-Campus students agreed that devices are important for academic success and academic activities.

Figure 2.5: Section 2 Question Average by Credit

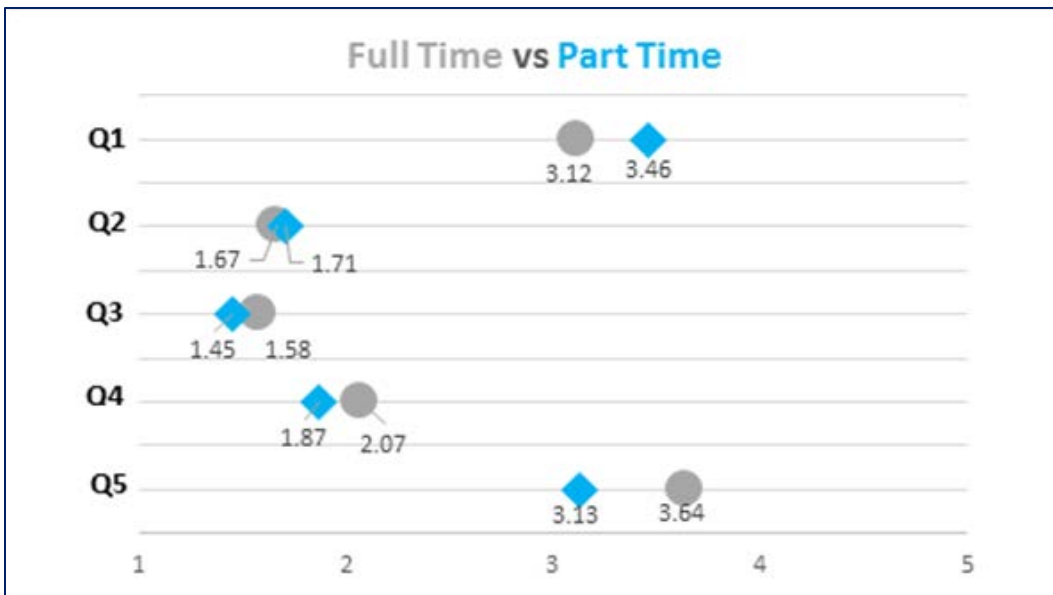
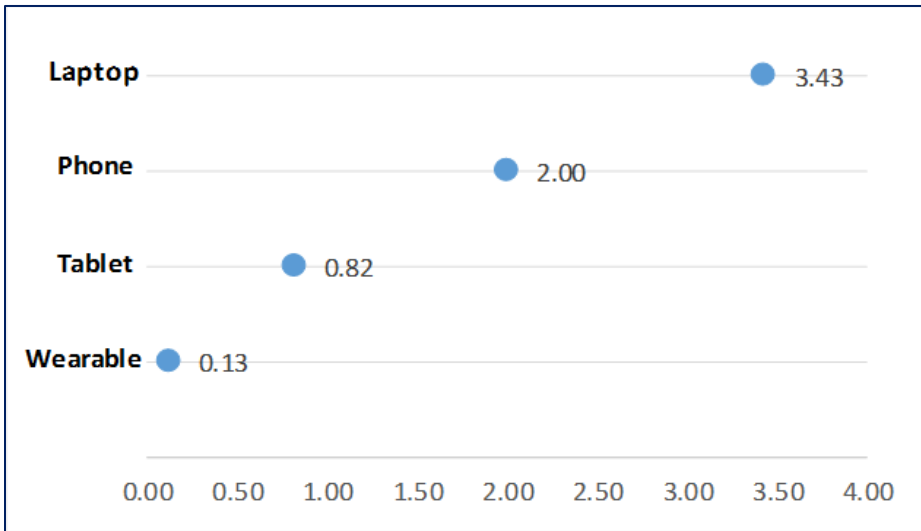


Table 2.4: Section 2 Credit Distribution

Credit	N	Margin of Error
Part-Time	50	0.28
Full-Time	308	0.11

The same mean comparison was done for full time and part time students (Figure 2.5). The full-time students show higher means, except for the first two questions. On-campus and off-campus students are in agreement for questions two, three and four. Both groups said to own three devices on average. They also indicated to own the same type of devices, and to have used their devices in at least one course. On-Campus and off-Campus students agree that devices are important for academic success and academic activities.

Figure 2.6: Section 2 Question 3 Device Average



Recall that, the third question focus on how devices are used in academic work. For this question, the student selects the most accurate statement, ranging from “did not use at all” to “used for all my course”. A comparison of how each device is used was done (Figure 2.6). laptops are used for about half of all courses, and smartphones for at least one course. Tablets and wearable devices are not used at all.

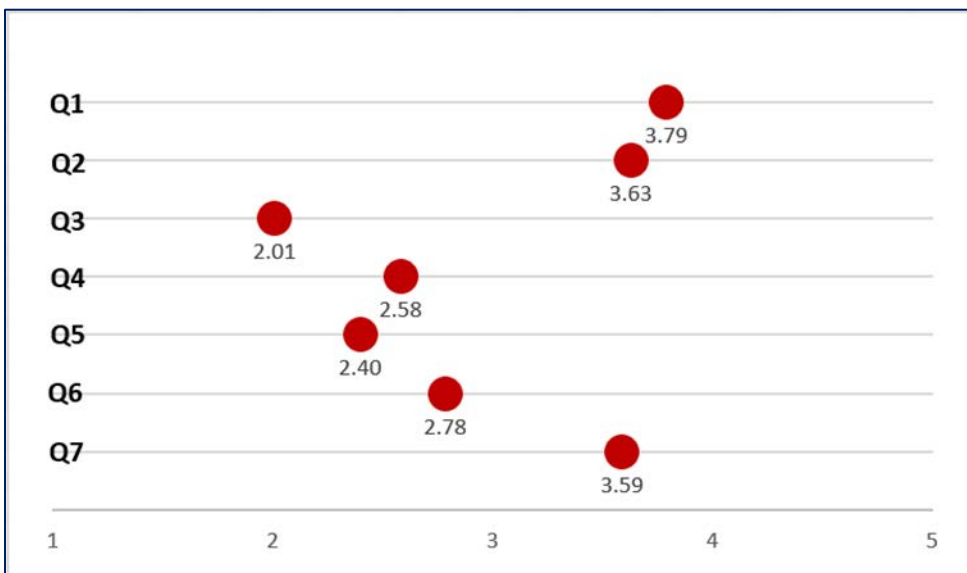
Section 3 – Technology and the University Experience

Section three is about student’s experiences with technology on campus.

The questions in section three are shown in the bulleted list below:

- Question one asks the student to rate their overall technology experience at St. Cloud State.
- The second question focuses on the student’s experience with the wireless network in certain areas around campus such as dormitories and libraries. Both question one and two are answered on a scale from “Poor” to “Excellent”.
- The next question deals with the number of devices students generally try to connect to campus wireless network at one time. The student has the option of choosing 0 through 6+ or “I don’t visit campus”.
- The fourth question deals with the amount of time each person spends online doing various activities, such as homework or social media, per day.
- Question five asks students to rate how useful they find certain early alert services such as alerts if your progress in a course is declining.
- The next question focuses on how the instructors use technology. Students rate the professors on how often they used and encouraged students to use technology from “Never” to “All the Time”.
- Finally, question seven asks students which tools they wish their instructors would use more or less.

Figure 3.1: Section 3 Question Average



Questions one and two shows that the average answer is “Good”. Question three illustrates that the average student is trying to connect two different devices to the campus wireless network at one time. The fourth question shows that the average person spends 3-4 hours doing online activities. Question five’s overall average demonstrates that early alert services are “Not very useful” while six shows instructor use/encourage students to use technology most times. Finally, question seven shows that overall students want instructors to use technology tools more for classes.

Figure 3.2: Section 3 Question Average by Age

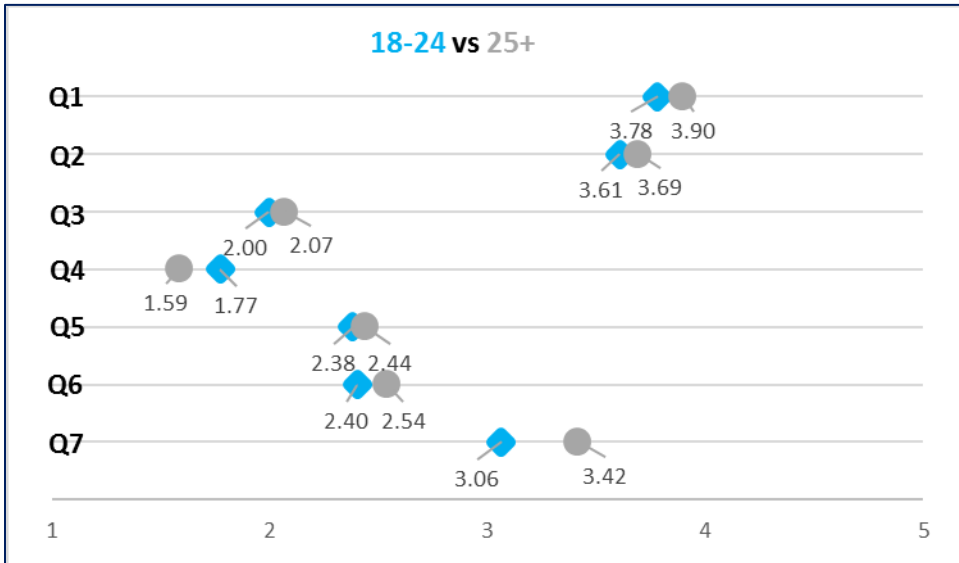


Table 3.1: Section 3 Age Distribution

Age	N	Margin of Error
18-24	291	0.12
25+	56	0.27

The means for the two age groups are very similar. The largest difference is in question seven with a 0.36 difference in mean. However, the 25+ group does have a larger margin of error that decreases that gap quite a bit. For all the questions, except question four, the 25+ group has a larger mean than the 18-24 year olds.

Figure 3.3: Section 3 Question Average by Gender

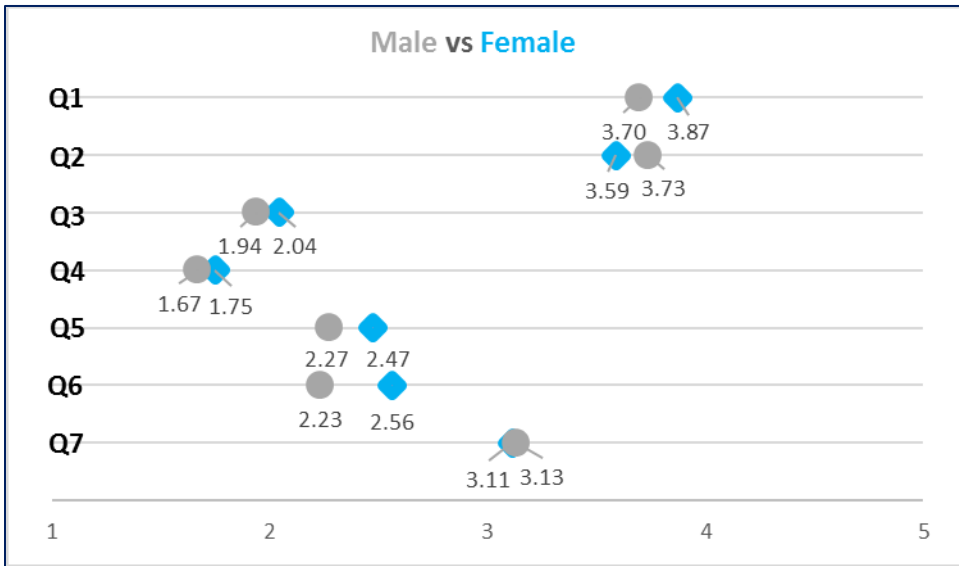


Table 3.2: Section 3 Gender Distribution

Gender	N	Margin of Error
Male	140	0.17
Female	192	0.14

When split by gender, the means for the two groups (Figure 3.3) are also similar.

Figure 3.4: Section 3 Question Average by Housing

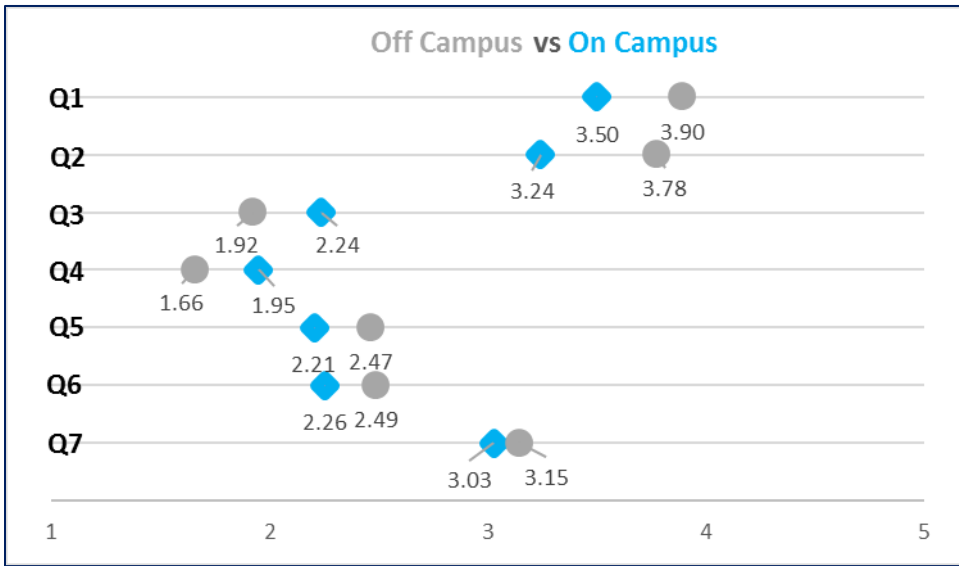


Table 3.3: Section 3 Housing Distribution

Housing	N	Margin of Error
On-Campus	91	0.21
Off-Campus	241	0.13

When section three is separated by on campus students compared to off campus there are more difference in means than there are for age and gender differences. For the overall all campus experiences (questions 1 and 2) the on campus students have a lower mean. However, for the rest of the questions the on campus students have a higher mean.

Figure 3.5: Section 3 Question Average by Credit

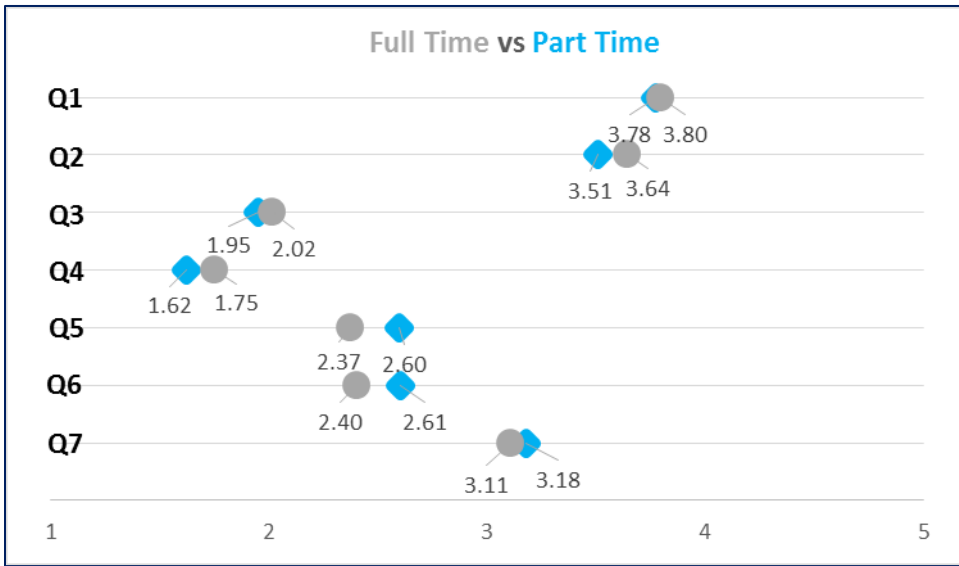
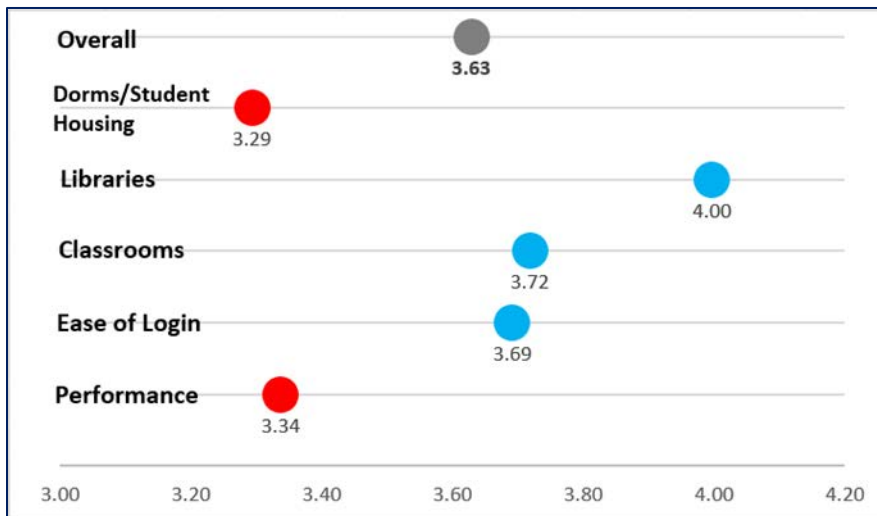


Table 3.4: Section 3 Credit Distribution

Credit	N	Margin of Error
Part-Time	39	0.32
Full-Time	302	0.12

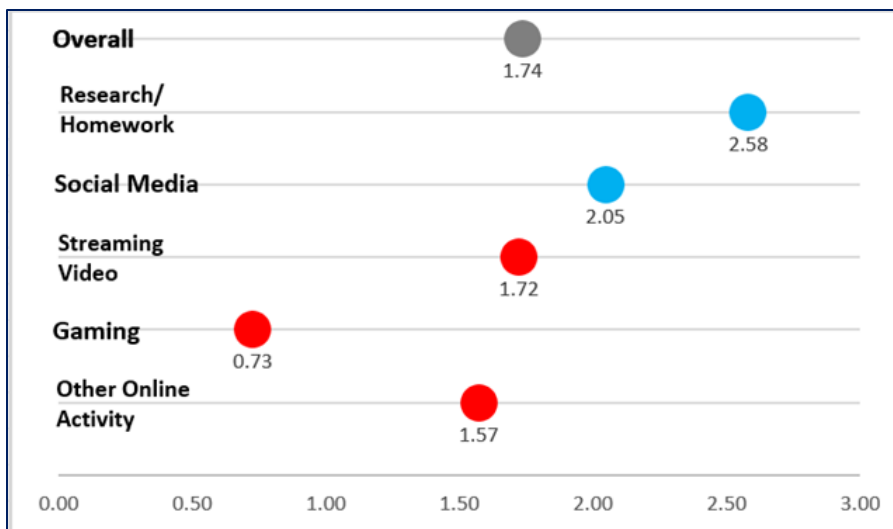
When split by credits, the means for the two groups (Figure 3.5) are similar to age and gender.

Figure 3.6: Section 3 Question 2 Average by Location



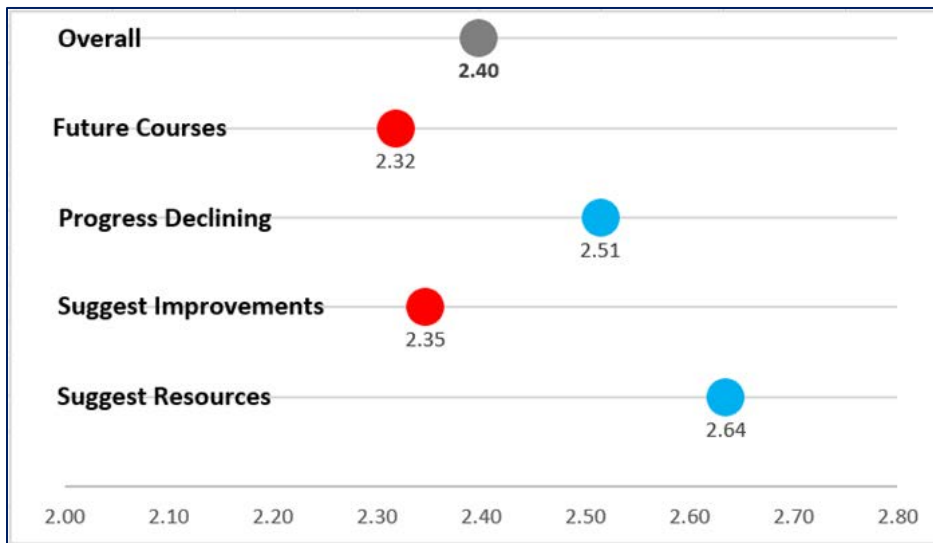
Question 3.2 had five different parts. It asks students to rank: overall reliability of Wi-Fi in the dorms, in the libraries, in the classrooms, ease of login to Wi-Fi, and network performance. The overall mean of the question is 3.63 and the parts of the question that add positively to the mean are library and classroom reliability and ease of Wi-Fi login. On the other hand, reliability in the dorms and overall performance contribute negatively to the overall question mean.

Figure 3.7: Section 3 Question 4 Activity



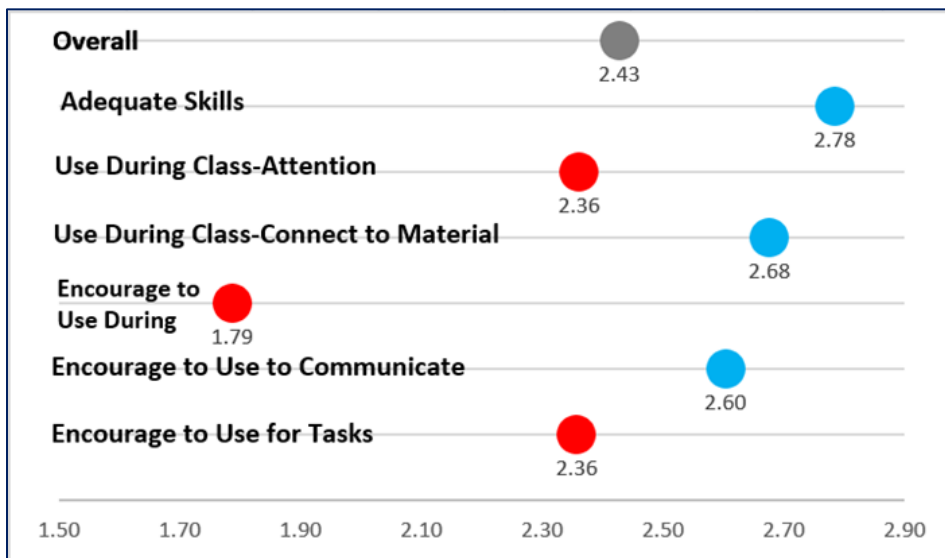
Question 3.4 also had five different parts. It asks how many hours students spend doing the following online activities: online research, social media, streaming video, gaming, other activities. A zero is picked for no hours, 1 for 1-2 hours, 2 for 3-4 hours, 4 for 5-8 hours, and 5 for more than 8 hours. The overall mean of question 3.4 is 1.74 and the parts of the question that add positively to the mean are homework and social media, while streaming, gaming and other decrease the overall mean.

Figure 3.8: Section 3 Question 5 by Alert



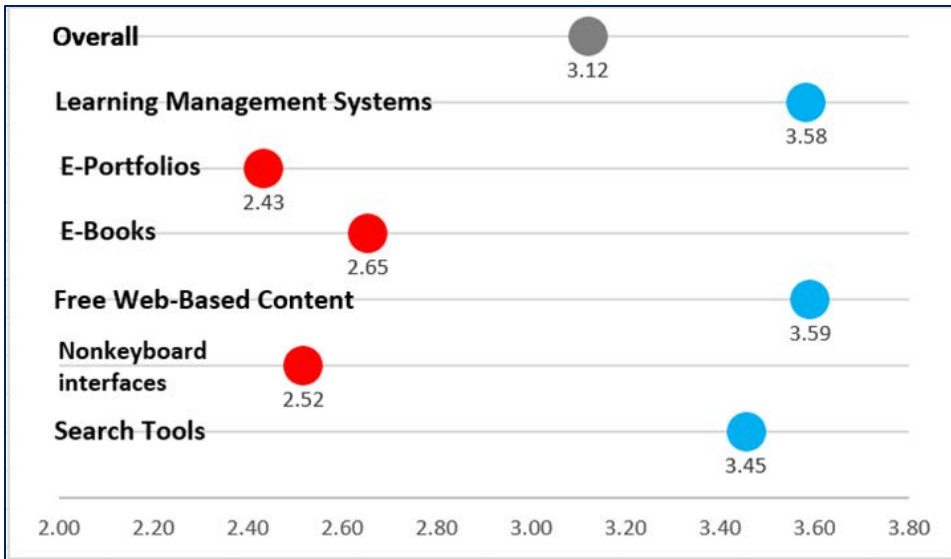
Question 3.5 had four different parts. The question asks students how useful they find certain early alert services such as: guidance about courses you might take in the future, alerts if your progress in a course declines, suggestions for how to improve performance, and suggestions about new academic resources.

Figure 3.9: Section 3 Question 6 by Description



Question 3.6 has six parts. The question asks how many of your instructors: have adequate technology skills for the course, use technology to maintain attention, use technology during class to make connections to the learning material, encourage students to use their own technology during class to deepen learning, encourage students to use online collaboration tools to communicate with instructor and classmates, encourage students to use technology for creative and critical thinking. The most notable point is teachers do not seem to want students to use technology devices during class, this point is decreasing the overall mean of the question.

Figure 3.10: Section 3 Question 7 by Tool



Question 3.7 has 14 parts. The question asked students which tools they wish their instructors would use more/less. The top resources students thought should be used more were learning management systems (D2L, Blackboard, or Moodle), free web-based content (YouTube, Khan Academy, OpenCourseWare), and finally search tools to find references for online work. The three tools that instructors should use less of, according to the survey, are E-portfolios, E-Books, and Non-keyboard face interfaces such as touchscreen and gesture or voice based devices.

Section 4 – Learning Environments

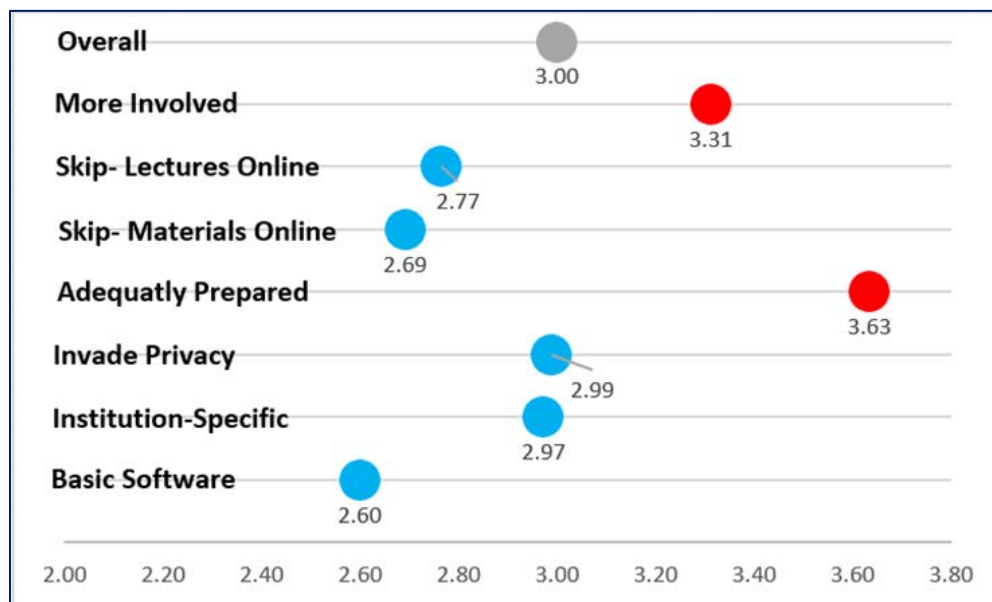
Section 4 has questions about the students learning environment. Question four has students' rate questions about their leaning environment on a scale from "Strongly Disagree" to "Strongly Agree".

Table 4.1: Section 4 Age, Gender, Housing and Credit Distribution

	N	Margin of Error	Average
18-24	293	0.12	3.01
25+	58	0.26	2.97
Female	193	0.14	2.99
Male	144	0.17	3.02
Off Campus	252	0.13	3.02
On Campus	93	0.21	2.94
Full Time	306	0.11	3.00
Part Time	40	0.32	3.02

Question 4.4 broken up by different sub groups: age, gender, housing, and credits shows almost no variability.

Figure 4.1: Section 4 Question 4 Average by Statement



Question 4.4 has seven parts. The students were to rate whether they agree or disagree with the following statements: The student gets more involved in courses that use technology, the student is more likely to skip classes when the lectures are available on-line, students are more likely to skip classes when materials are available on-line, the student was adequately prepared to use technology needed in their courses, the student is concerned that technology advances will invade their privacy, the student wishes they had been better prepared for technology-specific courses, and finally the student wishes they had been better prepared to use basic software (MS Office, Google Apps). The dot plot shows that students feel prepared for technology and also tend to get more involved in those classes that use technology.

Section 6 – Engagement, Efficacy and Enhancement

Section six focuses on how technology in the university engages and enhances the students' ability to learn. Four structured questions outlined the section.

The questions in section six are shown in the bulleted list below:

- Question one asks how technology has helped students with their coursework and communication between students and instructors.
- Question two asks how technology has contributed to learning.
- Question three asks how technology enables a student.
- And finally, Question four asks about getting distracted in the classroom by select devices.

All four questions, the student selects the statement that most accurately answers the question. The statements range from strongly disagree to strongly agree with a sixth option, 'Don't Know'. We analyze section six by age, gender, housing, and credit.

Figure 6.1: Section 6 Question Average

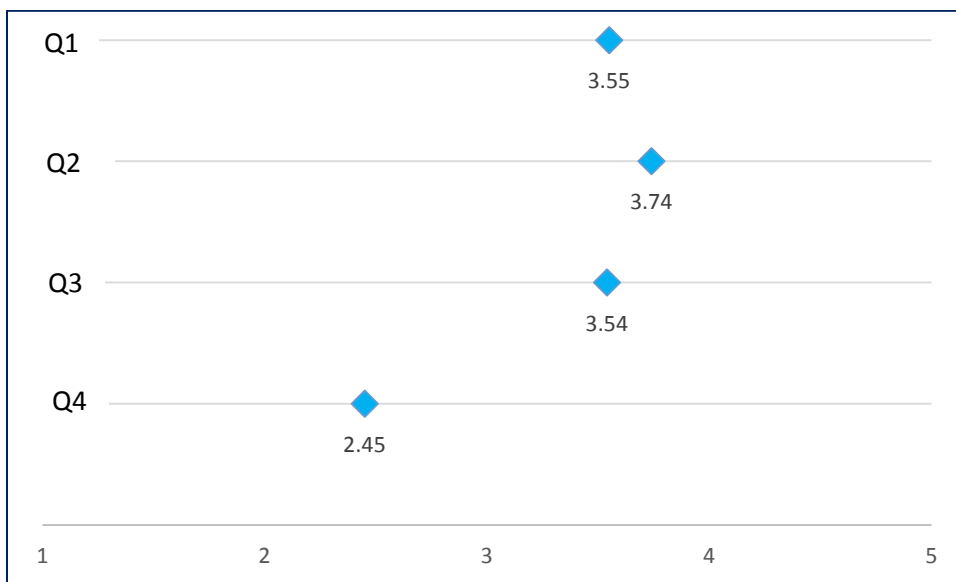


Figure 6.1 analyzes the average rank for each of the questions in section six. Students are more neutral, but lean towards agreeing with the question proposed in questions one, two and three. This suggests students agree more that technology has helped them in the learning process, especially in question two, the average rank rests at 3.74. Question four sticks out as the only question in the section students disagree more in. More students are disagreeing about being distracted during class.

Figure 6.2: Section 6 Question Average by Age

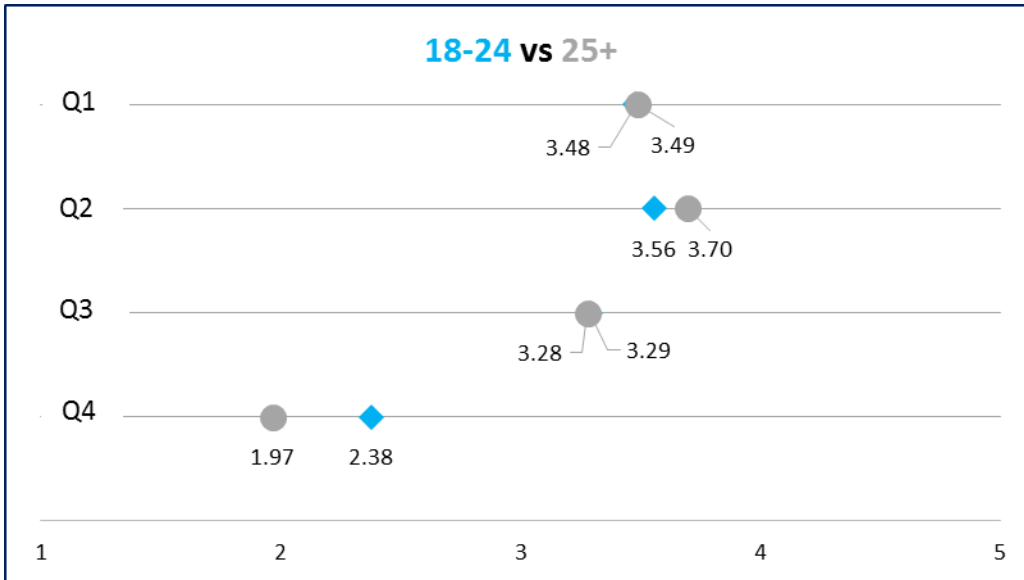


Table 6.1: Section 6 Age Distribution

Age	N	Margin of Error
18-24	300	0.12
25+	58	0.26

The number of students that fall into the each of the 18-24 age group and the 25 or older age group (Table 6.1). Students that took the survey were mostly traditional students 18-24 years old. The margin of error (Table 6.1) explains how certain we are about our results. The higher number of students in the 18-24 age group drives our margin of error lower and our results are more reliable.

Questions one and three (Figure 6.2), the age groups are in agreeance and generally agree more with the question asked. Question four’s age groups (Figure 6.2) have lower average values. Age group 25 or older (Figure 6.2) are lower saying that students are disagree more frequently about being distracted during class. 18-24 age group (Figure 6.2) has a higher average, so they admit they get distracted a more than a non-traditional student, but overall disagree. We have this intuition that non-traditional students tend to be more mature and responsible with their studies and get distracted less compared to a traditional student. Question four gives us evidence to support this intuition. I explore this question more in Figure 6.6.

Figure 6.3: Section 6 Question Average by Gender

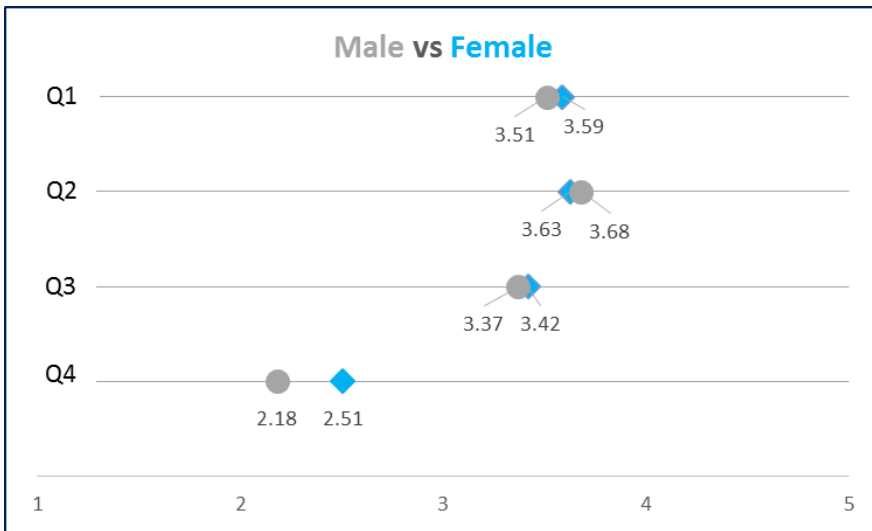


Table 6.2: Section 6 Gender Distribution

Gender	N	Margin of Error
Male	144	0.17
Female	196	0.14

The survey is represented more by females than males (*Table 6.2*), but are more evenly distributed than the age distribution. This makes sense that our survey is represented more by females because the number of females enrolled are generally higher than males.

The same type of trends of gender (*Figure 6.3*) hold from the age groups in *Figure 6.2*. Males and females are generally in agreement with the questions asked in questions one, two and three (*Figure 6.3*). Both males and females generally disagree about being distracted during class (*Figure 6.3*), with females agreeing to being distracted more during class than males.

Figure 6.4: Section 6 Question Average by Housing

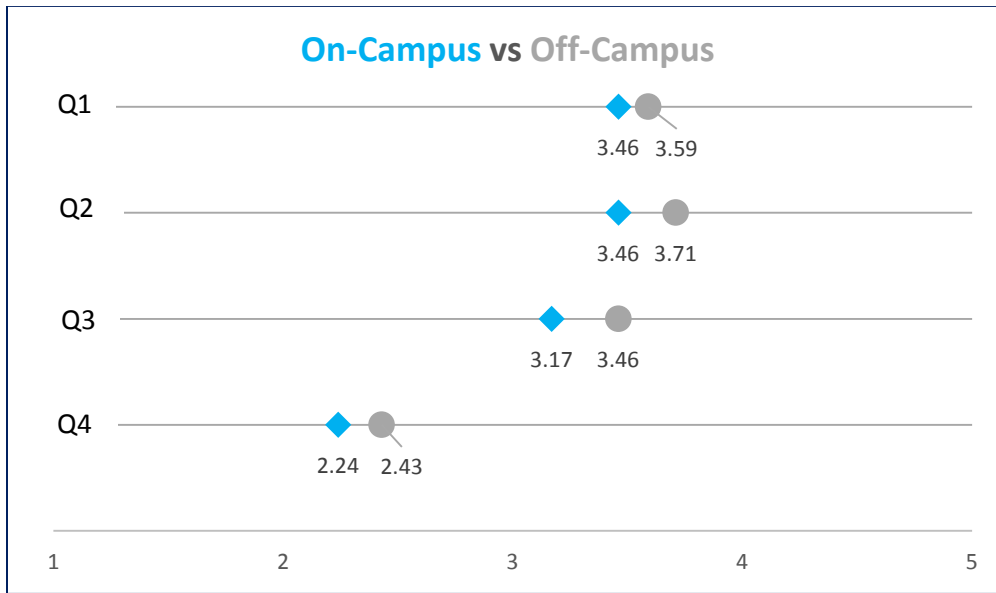


Table 6.3: Section 6 Housing Distribution

Housing	N	Margin of Error
On-Campus	93	0.21
Off-Campus	254	0.13

A surprising amount off-campus students took this survey (*Table 6.3*). Nearly three times as many off-campus students took the survey than on-campus students. The category averages were comparable in each of the questions (*Figure 6.4*). The averages follow the same trends as the previous figures. Questions one, two and three are neutral, but generally agree more and question four generally disagrees.

Figure 6.5: Section 6 Question Average by Credit

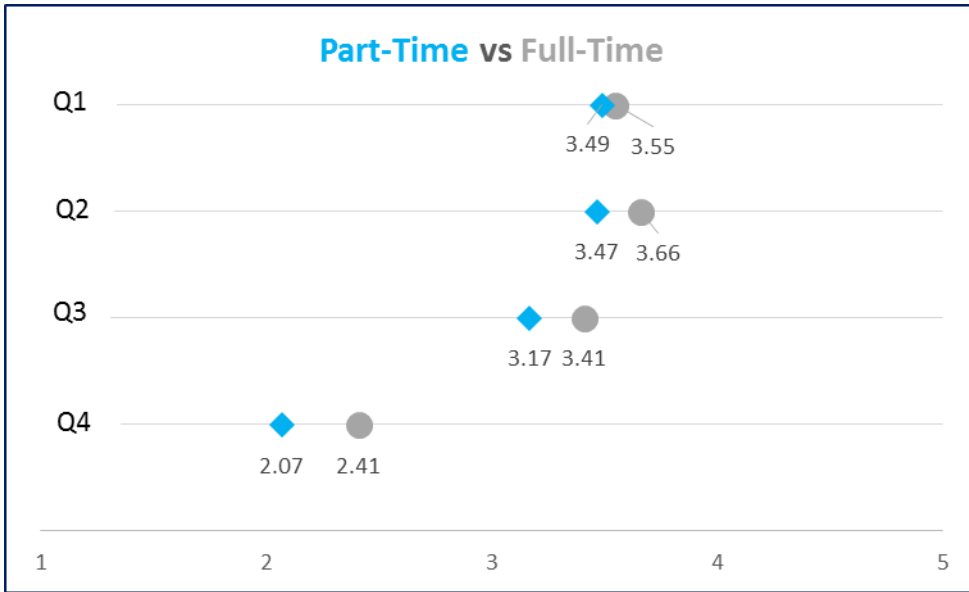


Table 6.4: Section 6 Credit Distribution

Credit	N	Margin of Error
Part-Time	41	0.31
Full-Time	308	0.11

The survey was taken mostly by full-time students (Table 6.4). Full-time and part-time students (Figure 6.5) have similar averages to the housing variable in Figure 6.4, but full-time and part-time have closer averages.

Figure 6.6: Section 6 Question 4 Average by Distraction

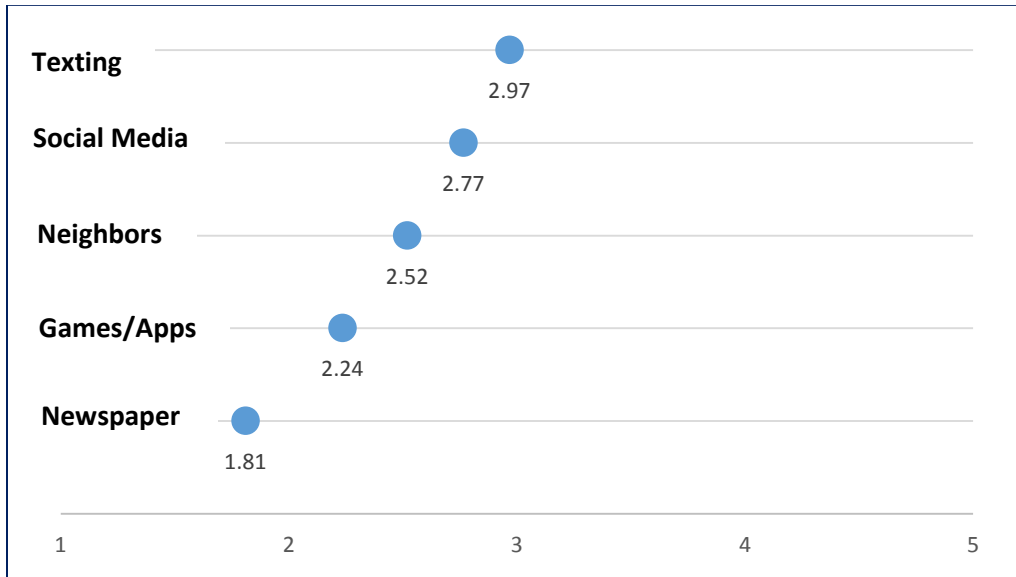


Figure 6.6 digs deeper into question four in section six to see what students are getting distracted by in class. Texting and social media play the biggest role in distracting students during class. Newspaper has the lowest average meaning that students are not distracted by the newspaper during class. This is yet more evidence that we are changing into a technology-driven world.

Conclusion

Section two contained five questions that emphasized on device usage and ownership. Students showed that they possess on average three devices with most of them being of similar type. Device ownership was said by students to be important for academic work and other school related activities.

Section three contains seven questions that focused on technology and the university experience. Most of the question in the section were rated neutral/some. Question four stood out because it was rated lower as not very useful. Questions one, two, and seven were rated neutral but lean more toward good, or use more, in question seven.

Section four contained one part that was useful to analyze. It had a neutral rating. In that section people rated being prepared to use technology needed for courses as the highest rated section within the question, while feeling underprepared about basic software was ranked the lowest. So generally people feel prepared using basic technology when entering college.

Section six contained four questions that related to how technology in the university engages and enhances a students' ability to learn. The overall question analysis showed students were mostly neutral but agreed more often in questions one, two and three. This states that students are neutral, but lean towards agreeing when asked if technology has contributed to learning and enabling a student. Question four stands out as the only question that students typically disagree with. Students generally disagreed when asked if they get distracted during class.