Phillips Community College of the University of Arkansas:

"ATE-DISC Year 3 Student Satisfaction Survey"

A Report To:

U of A PHILLIPS COMMUNITY COLLEGE

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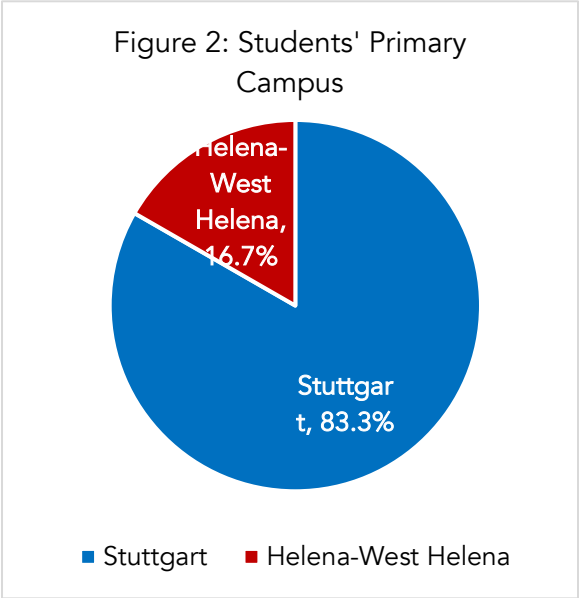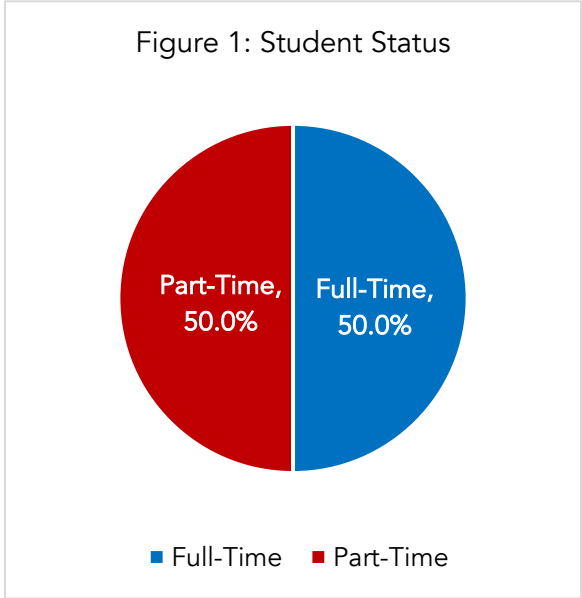
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Introduction

Phillips Community College of the University of Arkansas (PCCUA) Advanced Technology Education (ATE) – Delta Information Security and Cyber (DISC) program has completed its third year with sponsorship from the National Science Foundation (NSF). This report summarizes the results of a survey distributed in Spring 2022 to program students to collect data on student satisfaction with the program, their confidence with program knowledge and skills, the impact of the recent cyber-attack experienced by PCCUA on program students, and future career goals. In total, six students responded to the survey. Results reported here can help inform the continued development of the PCCUA DISC program.

Satisfaction Survey Results

Demographics

The demographic information reported in this section will help provide an understanding of the six PCCUA students who responded to the year one student satisfaction survey. Unless otherwise stated, the sample size for all reported results is 6.

Respondents are evenly split between full- and part-time student status. Nearly all respondents primarily attend classes at the Stuttgart campus.

Figure 1: Student Status

Part-Time, 50.0%   Full-Time, 50.0%

■ Full-Time   ■ Part-Time

Figure 2: Students' Primary Campus

Helena-West Helena, 16.7%

Stuttgart, 83.3%

■ Stuttgart   ■ Helena-West Helena

Most respondents identify as female (66.7%). Half of the respondents are in their third year of the program, while the remaining are split between their second (33.3%) and first year (16.7%).

Figure 3: Students' Gender Identity

Figure 4: Students' Academic Year
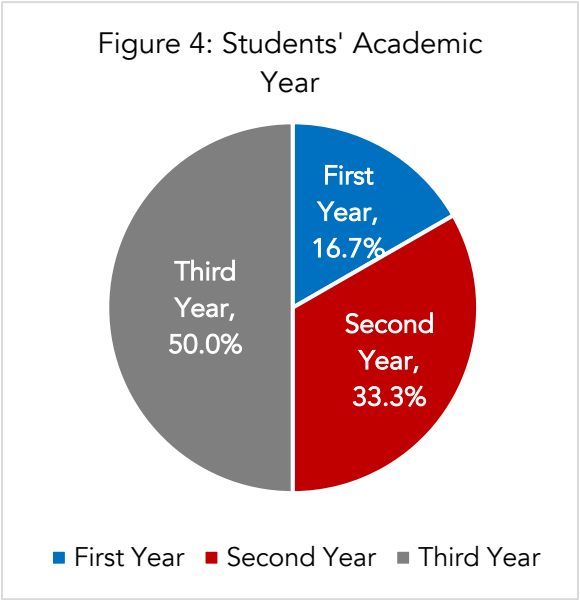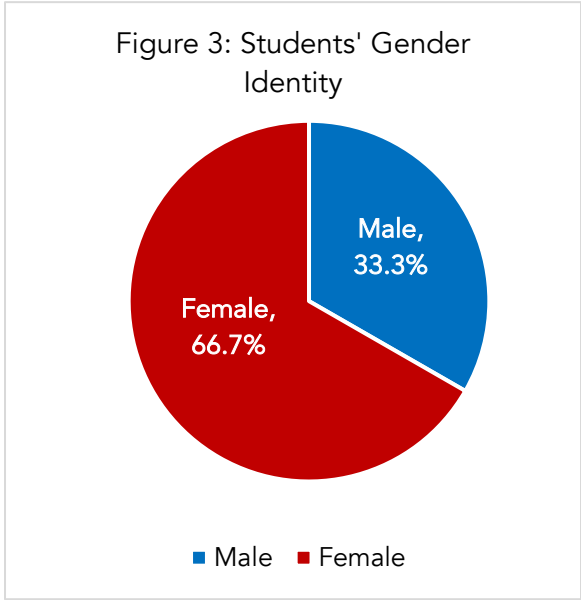
Program Experience Summary

Respondents were asked to indicate how they learned about the program by checking all that apply from a list of five intentional contact methods for the program and/or by writing in another way they learned about the program. Most selected "College Advisor" (83.3%), with others indicating "Faculty recommendation" (16.7%) or writing in that they found the program through an online search (16.7%).

Table 1: How Students Discovered the PCCUA ATE-DISC Program	
	%
College Advisor	88.3%
Faculty Recommendation	16.7%
Word-of-Mouth From Another Student	--
Flyer or Advertisement	--
Career Fair or Recruitment Event	--
Other	16.7%

Note: Students were able to indicate multiple sources, thus the total percent exceeds 100%.

Students were then asked what one thing the program has provided them that they believe will be helpful as they prepare for a career in the Information Systems Technology field. Five respondents provide a written response, with most focusing on the knowledge they have gained in their courses. Additionally, one student each mentions the hands-on experience in labs and the importance of attention to detail in ones work.

Program Components

Assessment of the potential impact of the program curriculum and related activities was a focus for the main section of the survey. More specifically, students were asked to indicate their confidence in, satisfaction with, and utilization of an assortment of skills, concepts, and resources.

First, students were asked to rate their confidence with 11 skills and concepts that are introduced in the program on a scale from "Not At All Confident" (1) to "Extremely Confident" (5). Concepts and skills listed in Figure 5 averaged at least a 4.00 rating and represent those that received the highest average confidence ratings. The items in Figure 6 are those that received moderate average confidence ratings.

Figure 5: Confidence with Program Skills & Concepts - High Confidence

| Skill/Concept	Somewhat Confident (3)	Confident (4)	Extremely Confident (5)
Importance of communication and customer service skills related to the computer support environment (mean=4.17)	16.7%	50.0%	33.3%
Understand Cybersecurity concepts related to legal regulations and risk mitigation for both industry and home-based environments (mean=4.00)	16.7%	66.7%	16.7%
Demonstrate you ability to build virtual machines (mean=4.00)	16.7%	66.7%	16.7%
Ability to configure desktop operating systems for use in networked environment (mean=4.00)	16.7%	66.7%	16.7%
Importance of cyber security to protect systems in businesses and home-based environments (mean=4.00)	16.7%	66.7%	16.7%

■ Not At All Confident (1) ■ Not Very Confident (2) ■ Somewhat Confident (3)

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Even those with more moderate average responses average above "Somewhat Confident," indicating that students feel confident with all eleven measured skills and concepts. Indeed, the only skill to receive any confidence rating below "Somewhat" is using acronyms and terminology associated with computer programming, with 16.7% indicating "Not Very Confident."

Figure 6: Confidence with Program Skills & Concepts - Moderate Confidence
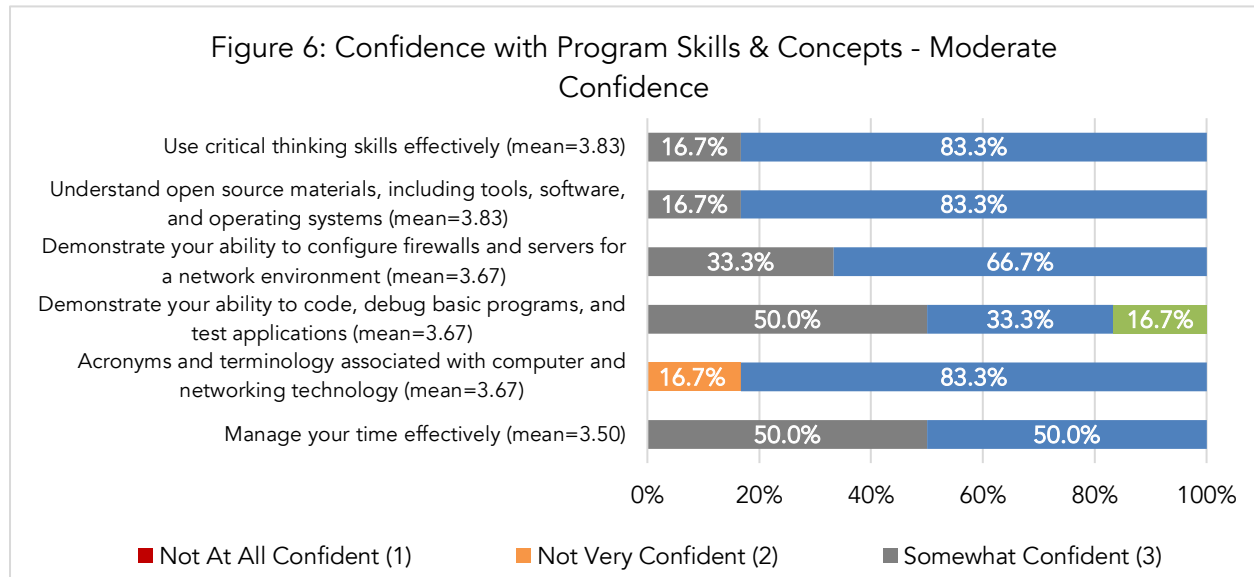
Second, students rated their satisfaction with five program components on a scale from "Not At All Satisfied" (1) to "Very Satisfied" (4). These students register unanimous maximum satisfaction with four of these components, with all indicating "Very Satisfied." The lone standout is their own academic performance, which has a high average rating (mean = 3.67).

Figure 7: Students' Satisfaction with Program Components
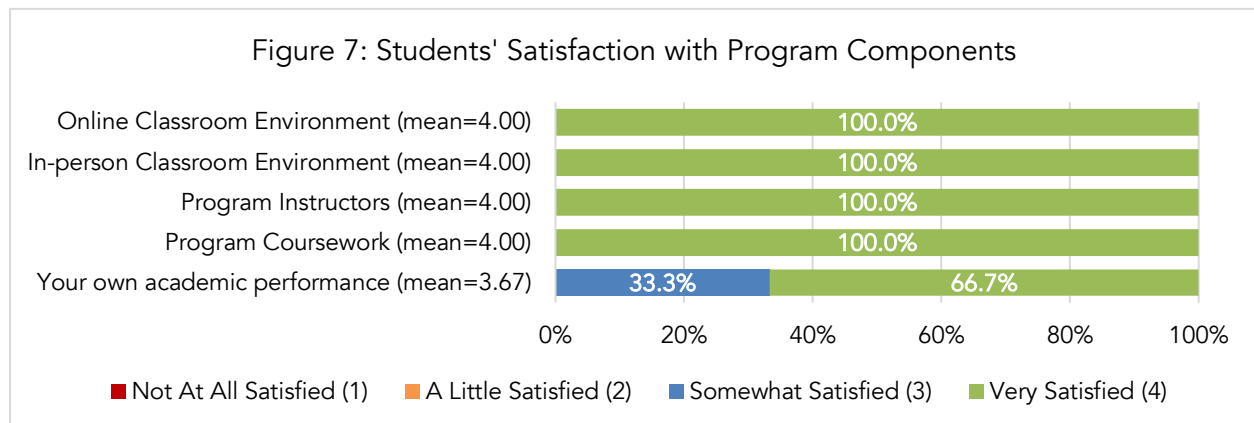
Finally, students indicated how often they used a phone, a personal computer, or computer lab to complete personal assignments. The responses show that respondents are most frequently using their personal computer to complete assignments, with the computer lab being frequented regularly by some as well. Phones are less regularly used to complete assignments

by these respondents. In addition to the items listed, one student wrote in an additional response indicating that they used a laptop loaned to them by the college very regularly.

Figure 8: Students' Use of Electronic Devices to Complete Assignments
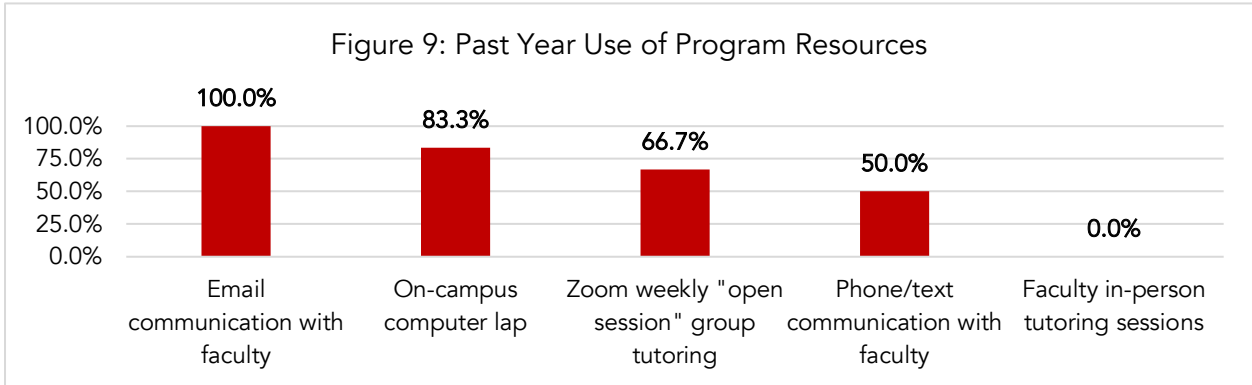
Device	Not At All (1)	Not Very Regularly (2)	Somewhat Regularly (3)	Very Regularly (4)
Personal Computer (mean=3.67)			33.3%	66.7%
Computer Lab (mean=2.83)		33.3%	50.0%	16.7%
Phone (mean=2.17)	16.7%	66.7%		16.7%

(0% — 100% scale; legend: Not At All (1), Not Very Regularly (2), Somewhat Regularly (3), Very Regularly (4))
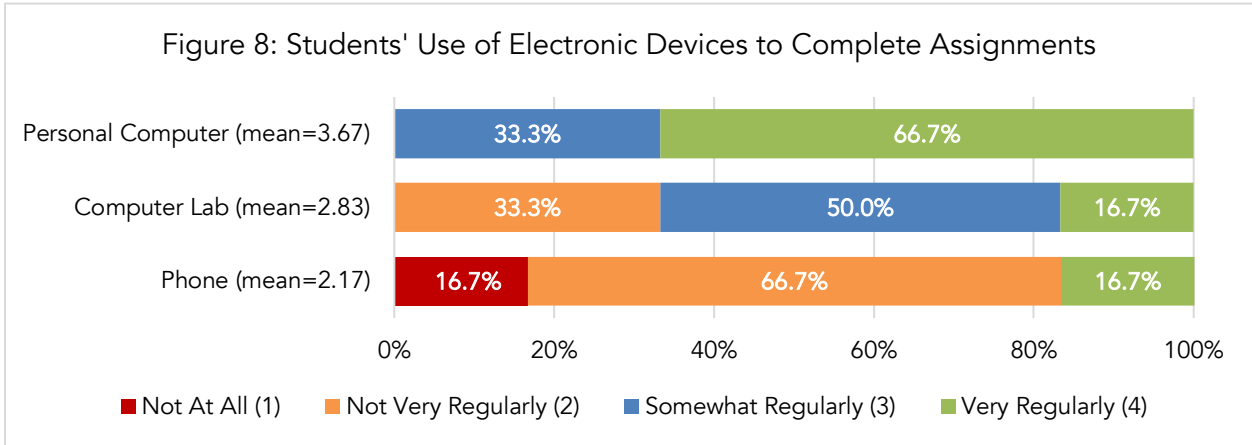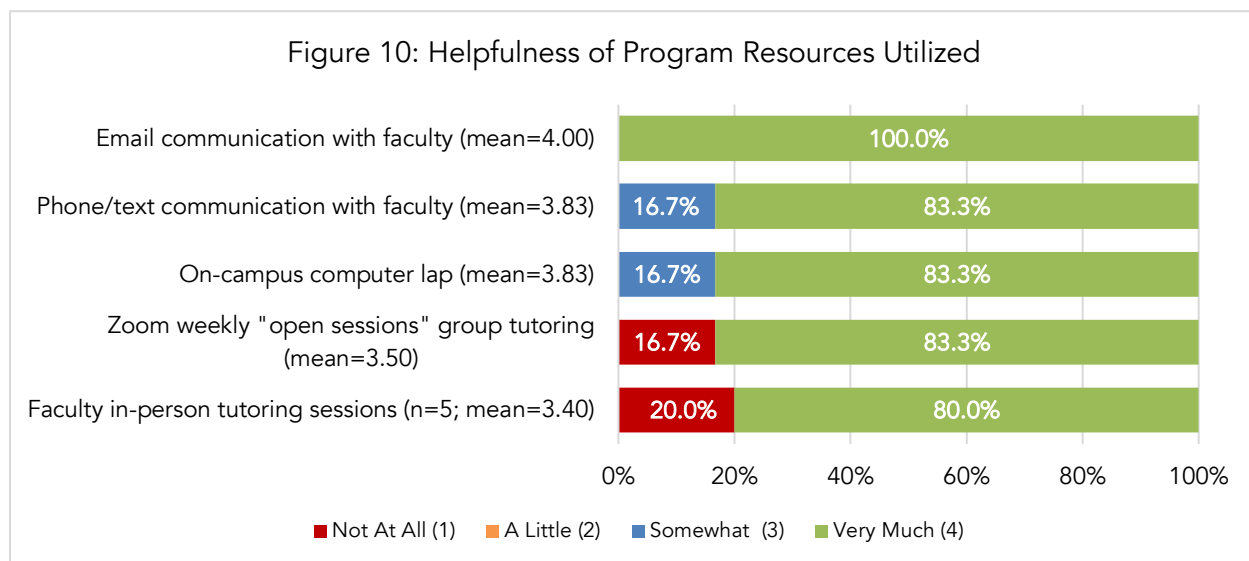
Support Services and NetLab

To better understand utilization of supports provided at PCCUA, respondents were asked to review their use of and satisfaction with resources available. These survey items focus on the helpfulness, comfort, and satisfaction with various resources.

First, respondents were asked to select all program resources that they have used in the past year out of a list of five, with the option to write in addition resources provided. All respondents indicate emailing with faculty, most indicate using the on-campus computer lap and weekly "open sessions" tutoring over Zoom, and half indicate communicating with faculty over the phone or text messaging. No respondent indicated attending in-person tutoring, nor did any respondent write in another resource utilized.

Figure 9: Past Year Use of Program Resources

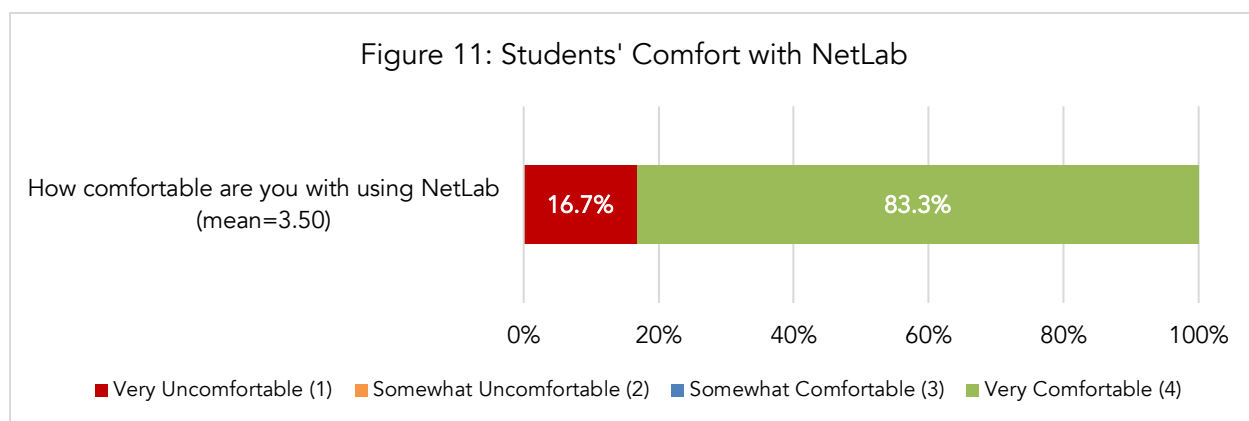| Resource	Percentage
Email communication with faculty	100.0%
On-campus computer lap	83.3%
Zoom weekly "open session" group tutoring	66.7%
Phone/text communication with faculty	50.0%
Faculty in-person tutoring sessions	0.0%

Students were then asked to rate how helpful the resources they have used have been in supporting their success in the program this past year. Interestingly, respondents provide high helpfulness ratings for resources they did not indicate utilizing, even when presented with the option to select "N/A" for these items. All respondents found email communication with

faculty to be "Very Much" helpful, with nearly all finding the remaining resources "Very Much" helpful as well.

Figure 10: Helpfulness of Program Resources Utilized

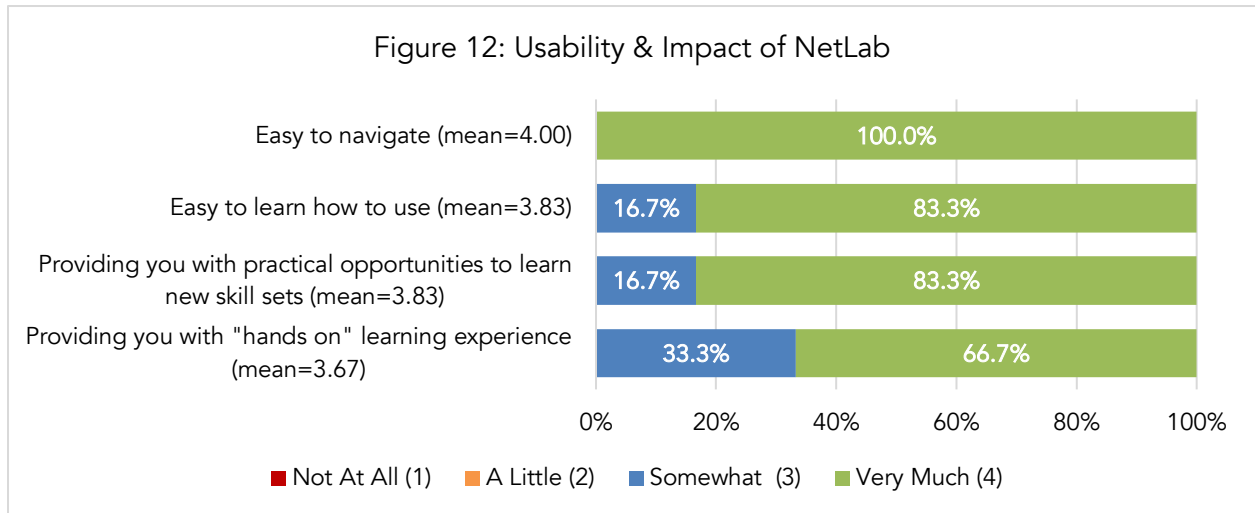| Resource	Not At All (1)	A Little (2)	Somewhat (3)	Very Much (4)
Email communication with faculty (mean=4.00)				100.0%
Phone/text communication with faculty (mean=3.83)			16.7%	83.3%
On-campus computer lap (mean=3.83)			16.7%	83.3%
Zoom weekly "open sessions" group tutoring (mean=3.50)	16.7%			83.3%
Faculty in-person tutoring sessions (n=5; mean=3.40)	20.0%			80.0%

Students were also asked a series of questions focusing on their use of NetLab. First, they indicated how comfortable they are using NetLab. While most respondents indicate being "Very Comfortable" with NetLab, one respondent said they are "Very Uncomfortable" with the resource.

Figure 11: Students' Comfort with NetLab

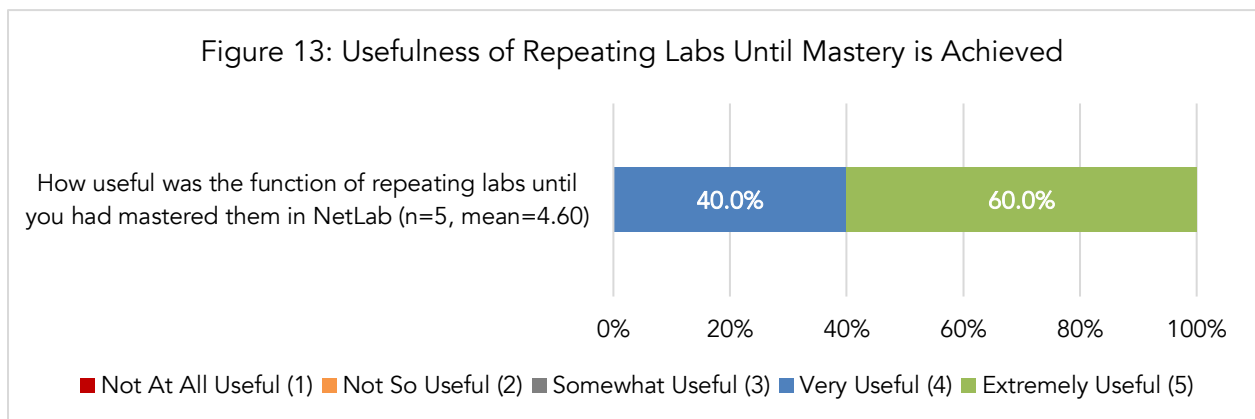|	Very Uncomfortable (1)	Somewhat Uncomfortable (2)	Somewhat Comfortable (3)	Very Comfortable (4)
How comfortable are you with using NetLab (mean=3.50)	16.7%			83.3%

Second, students were asked to rate the extent to which NetLab was easy to use and provided students with practical learning opportunities on a scale from "Not At All" (1) to "Very Much" (4). All respondents find NetLab to be "Very Much" easy to use, and most find it easy to learn how to use, that it provides practical opportunities to learn new skill sets, and that it provides "hands-on" learning experience "Very Much" (see Figure 12, next page).

Figure 12: Usability & Impact of NetLab

	Somewhat (3)	Very Much (4)
Easy to navigate (mean=4.00)		100.0%
Easy to learn how to use (mean=3.83)	16.7%	83.3%
Providing you with practical opportunities to learn new skill sets (mean=3.83)	16.7%	83.3%
Providing you with "hands on" learning experience (mean=3.67)	33.3%	66.7%

Legend: ■ Not At All (1) ■ A Little (2) ■ Somewhat (3) ■ Very Much (4)

Third, using a scale from "Not At All Useful" (1) to "Extremely Useful" (5), respondents indicated how useful they found the process of repeating NetLab labs until mastery was achieved was for them. Of those who indicate utilizing this aspect of NetLab, all find it at least "Very Useful."

Figure 13: Usefulness of Repeating Labs Until Mastery is Achieved

	Very Useful (4)	Extremely Useful (5)
How useful was the function of repeating labs until you had mastered them in NetLab (n=5, mean=4.60)	40.0%	60.0%

Legend: ■ Not At All Useful (1) ■ Not So Useful (2) ■ Somewhat Useful (3) ■ Very Useful (4) ■ Extremely Useful (5)

Note: "Not Applicable" responses were not used in the calculation of percentages or average.

Respondents were next given the opportunity to provide feedback on how to improve the NetLab user experience. Two respondents indicate that they are not sure of what improvements to make, while another explains that time limits on the lab sessions makes the lessons more difficult to complete in their home environment.

Select Quotes:

"Well due to some unforeseen circumstances we were not able to use NetLab, but I did enjoy net lab system the past semester and hope it is up and going again soon. I don't like it being timed sessions though because I have to rush through and having newborn baby doesn't help with time restrictions."

"I don't know because when I was getting used to it, we had problems out of it."

Student Career Plans

Students were asked multiple questions related to their career goals and knowledge of career enhancing opportunities. First, respondents were asked what most influenced their decision to get an Information Systems Technology degree. Three of four responding students point to their passion for technology and computers, while one explains that they see the field as one they can succeed in.


Select Quotes:

"Love of computers."

"My passion for technology and computers in general and my advisor also recommended it to me."

"I like fixing and assembling cellphones, tablets, and I would like to build computers, TVs, game consoles, and anything that is electronic."
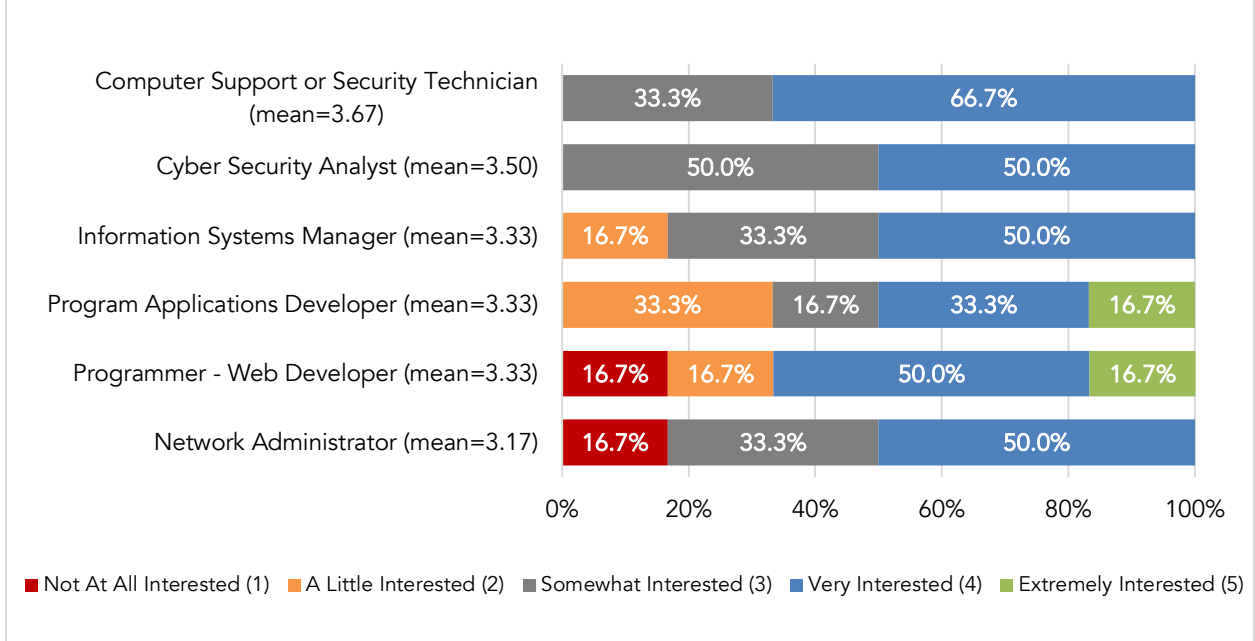
"To learn more about the subject and better myself in a growing field that is needed."

When asked to rate their familiarity with the job demand for Information Systems Technology in the Delta region on a scale from "Not At All Familiar" (1) to "Extremely Familiar" (5), most respondents are "Somewhat Familiar," with one each being "Not At All" and "Very" familiar.

Figure 14: Student Familiarity with Job Demand

How familiar are you with the job demand for Information Systems Technology in the Delta region? (mean=2.83)

16.7% | 66.7% | 16.7%

Not At All Familiar (1) | Not So Familiar (2) | Somewhat Familiar (3) | Very Familiar (4) | Extremely Familiar (5)
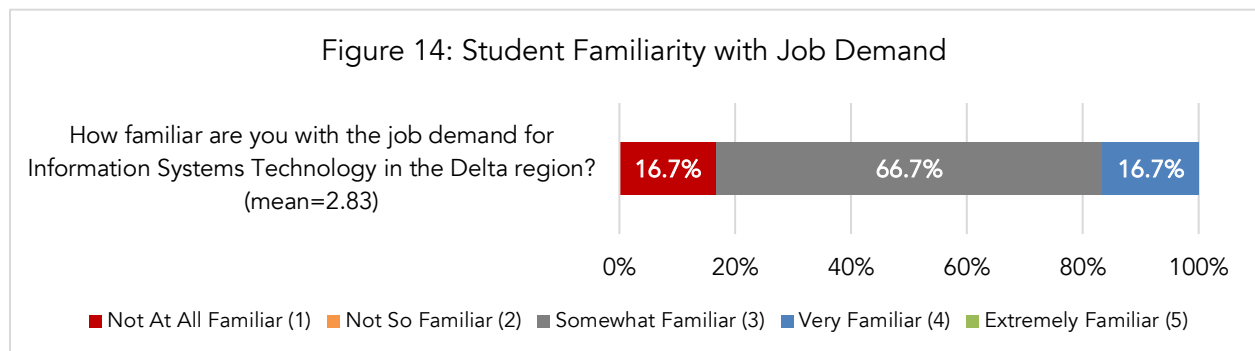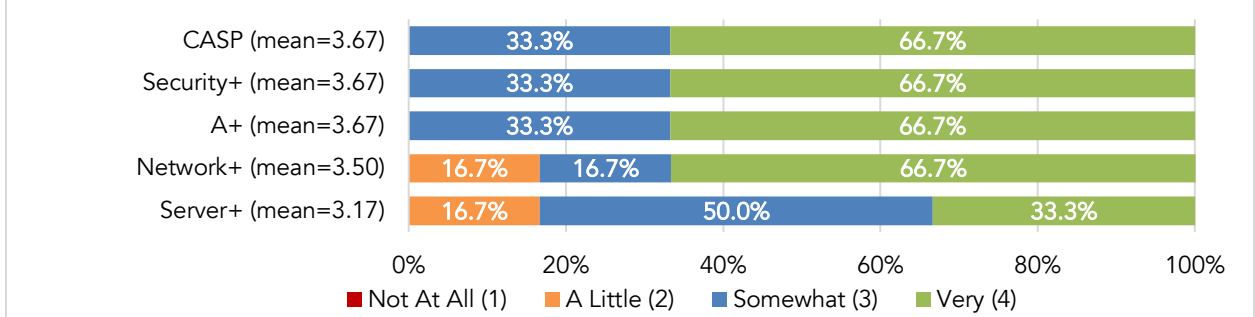
Provided with six specific careers available to program graduates, respondents were asked to indicate their interest in each on a scale from "Not At All Interested" (1) to "Extremely Interested" (5). Interest in these potential careers is variable among these respondents. While half or more are "Very" or "Extremely" interested in all six careers, "Little" or no interest in reported for four or six careers by at least one respondent. In the area provided to write in an additional career of interest, one student provided a response: *"I would like to build the computers"* (see Figure 15, next page).

Figure 15: Student Interest in Information Systems Technology Careers

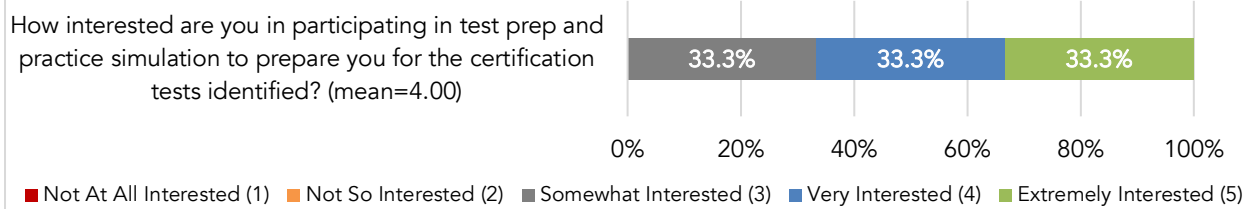| Career	Not At All Interested (1)	A Little Interested (2)	Somewhat Interested (3)	Very Interested (4)	Extremely Interested (5)
Computer Support or Security Technician (mean=3.67)			33.3%	66.7%	
Cyber Security Analyst (mean=3.50)			50.0%	50.0%	
Information Systems Manager (mean=3.33)		16.7%	33.3%	50.0%	
Program Applications Developer (mean=3.33)		33.3%	16.7%	33.3%	16.7%
Programmer - Web Developer (mean=3.33)	16.7%	16.7%		50.0%	16.7%
Network Administrator (mean=3.17)	16.7%		33.3%	50.0%	

Students were also asked to rate how interested they are in earning five specific certifications: A+, Security+, Network+, Server+, and CompTIA Advanced Security Practitioner (CASP). Students indicated their interest on a scale from "Not At All" (1) to "Very" (4). Over 80% of respondents are at least "Somewhat" interested in each of the certifications, with two thirds being "Very" interested in all except Server+.

Figure 16: Student Interest in Industry Certifications

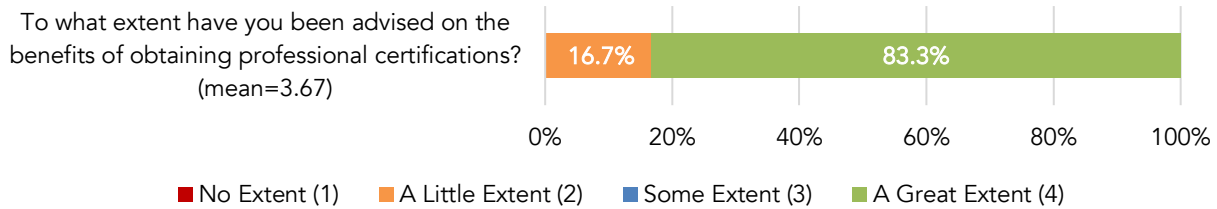| Certification	Not At All (1)	A Little (2)	Somewhat (3)	Very (4)
CASP (mean=3.67)			33.3%	66.7%
Security+ (mean=3.67)			33.3%	66.7%
A+ (mean=3.67)			33.3%	66.7%
Network+ (mean=3.50)		16.7%	16.7%	66.7%
Server+ (mean=3.17)		16.7%	50.0%	33.3%

Respondents, rating their interest on a scale from "Not At All" (1) to "Extremely" (5), express moderate to high interest in taking test preparation and practice simulations in order to prepare for the certification tests listed above (see Figure 17, next page).

Figure 17: Interest in Certification Test Preperation and Practice Simulations

How interested are you in participating in test prep and practice simulation to prepare you for the certification tests identified? (mean=4.00)

Somewhat Interested (3)	33.3%
Very Interested (4)	33.3%
Extremely Interested (5)	33.3%

Legend: ■ Not At All Interested (1) ■ Not So Interested (2) ■ Somewhat Interested (3) ■ Very Interested (4) ■ Extremely Interested (5)

Respondents were next asked to indicate the extent to which they have been advised on the benefits of obtaining these certifications on a scale from "No Extent" (1) to "A Great Extent" (4). Most respondents have been informed about these benefits to "A Great Extent."

Figure 18: Student Awareness of Certification Benefits

To what extent have you been advised on the benefits of obtaining professional certifications? (mean=3.67)

A Little Extent (2)	16.7%
A Great Extent (4)	83.3%

Legend: ■ No Extent (1) ■ A Little Extent (2) ■ Some Extent (3) ■ A Great Extent (4)

Provided with five different possible career goals, students were asked to indicate which they plan to achieve. All respondents plan to graduate with an Information Systems Technology degree, achieve certificates of proficiency in this area, and obtain other industry certifications. A majority of respondents also plan to transfer for a higher degree in this field (83.3%) and become employed in the Information System Technology workforce (66.7%).

Table 2: Students' Current Career Goals	%
I plan to graduate with an Information Systems Technology degree	100.0%
I plan to achieve certificates of proficiency in Information Systems Technology	100.0%
I plan to obtain other industry certifications	100.0%
I plan to transfer for a higher degree in the Information Systems Technology field	83.3%
I plan to become employed in the Information Systems Technology workforce	66.7%

Note: Students were able to indicate multiple sources, thus the total percent exceeds 100%.

When asked if there is anything else they would like the program organizers to know, one respondent wrote in "No thanks," while the remaining respondents did not write in a response.

Impact of PCCUA Cyber-Attack

In the Spring of 2022, PCCUA was the victim of a cyber-attack. Respondents were asked three questions about how this experience impacted them, particularly as future information technology practitioners. First, respondents were asked what, if anything, did they learn about this field and the knowledge and skills taught int he program from the cyber-attack. Three respondents provided comment, with each focusing on the importance of cybersecurity and preparation for attacks like the one experienced by PCCUA.

Select Quotes:

"Stay prepared for the unexpected."

"That cybersecurity is in much need and attacks is always possible. You can protect against it best you can but there is so many ways that an attack can happen."

"I leaned that cybersecurity is extremely important and is something that people should have knowledge of, at least at the general level."

Asked to rate the extent to which the cyber-attack impacted their studies, using a scale from "Not At All" (1) to "To A Very Great Extent" (5), at least half of respondents indicate that the attack prevented them from getting their coursework completed on time and prevented them from accessing the resources they needed to communicate with faculty to "Some" extent or greater. Respondents provide a low rating for the attack resulting in their receiving a lower grade in any of their courses.

Figure 19: Student Awareness of Certification Benefits
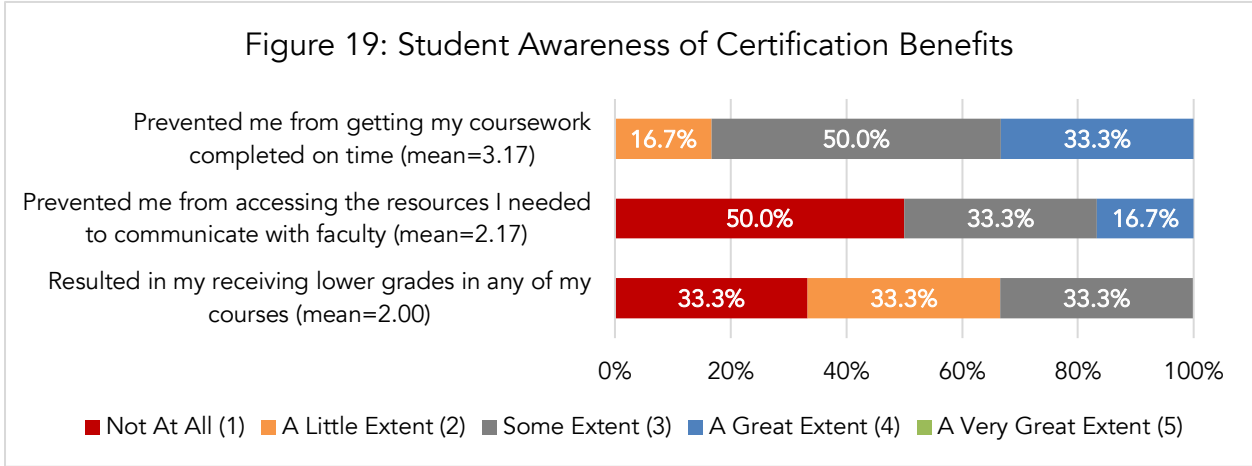
Finally, respondents were asked how, if at all, did they adjust their school habits and schedule during the time of the cyber-attack. Four of six respondents provide a comment. Two respondents explain that they did their best to work around the issues created, adapting to the best of their ability, while two others explain that they were largely unable to adapt.

Overall Satisfaction

Concluding the survey, respondents were asked to rate their overall satisfaction and how likely they are to recommend the program to others on a scale from "Extremely" dissatisfied/unlikely (0) to "Extremely" satisfied/likely (10). All respondents provide either a 9 or 10 rating for both their overall satisfaction and how likely they are to recommend the program to others. This provides a strong statement on the positive impact this program is having on its students.

Figure 20: Satisfaction with & Liklihood to Recommend the ATE-DISC Program

How satisfied are you with your experiences in the program? (mean=9.50)	100.0%
How likely are you to recommend this program to others? (mean=9.83)	100.0%

0%　20%　40%　60%　80%　100%

■ Detractors (0-6)　■ Passive (7-8)　■ Promoters (9-10)
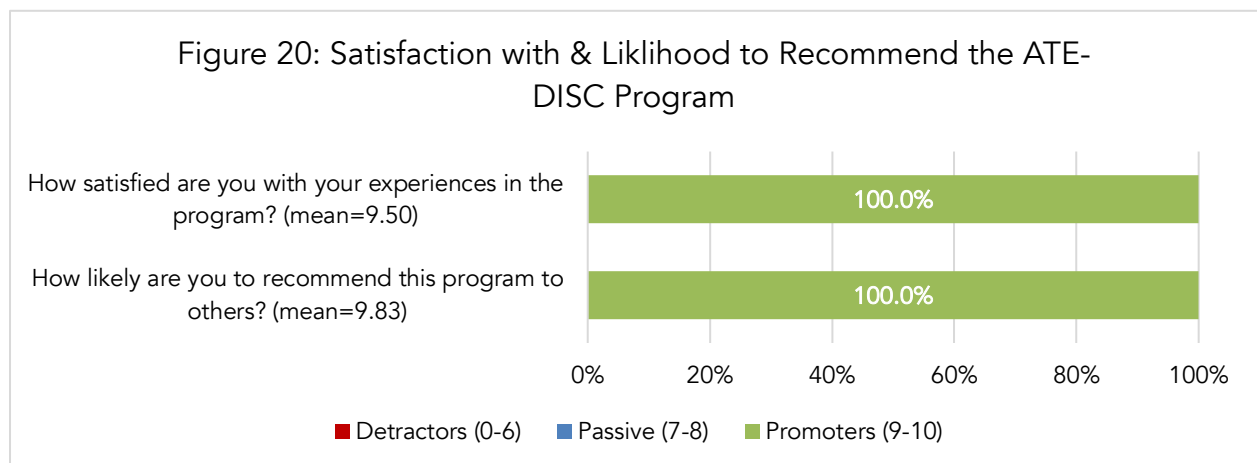
When asked if there were any additional resources or support that should be provided to students in the DISC program, three respondents provided feedback. Two respondents point towards more hands-on experience, with one suggesting internships to help in this area. The remaining comment explains that the program is doing all it can to benefit student learning.

Conclusion

Results for Year 3 programming demonstrate that students are very confident in their ability to understand and utilize the skills and competencies taught in this program. Relatedly, respondents to this survey also report very high satisfaction with separate program components. This satisfaction extends to the resources made available to students in the program. Comfort using Netlab is also rated very high among those responding to this survey, with the respondents finding the program to be easy to learn and use and impactful in providing them key learning experiences. These respondents are interested in a variety of careers in Information Systems Technology, and they plan on earning multiple certifications on their way to these careers. This leads respondents to report very high satisfaction with the program and a high likelihood that they will recommend the program to others. Collectively, the results of this survey are very positive and indicative of a strong positive impact on students in the program.

Given the results presented in this report, the evaluation team recommends the following:
- Continue to facilitate and promote communication between faculty and students. Email and phone communication were highly rated among respondents, suggesting that this practice can be important to building trust, providing support, and creating community in the program.
- Stabilize NetLab access for students. Some respondents explain that the disruption in access was problematic, though they found benefit in the program when it was available to them.
- Look for more ways to promote hands-on learning for students, either through practical experiences (e.g., internships) or class facilitated experiences (e.g., NetLab and lab experiences).

Consideration of any of the above should improve program functioning and facilitate student success, ultimately producing more certified IT professionals for the Delta region.