

Phillips Community College of the University of Arkansas: *"ATE-DISC Year 3 Student Pre-test Survey"*

A Report To:



Prepared By:

Megan Mullins, Ph.D.
Brian Lunn, Ph.D.(c)
Mullins Consulting, Inc.
February 2022



Mullins Consulting
Inspired Social Research & Program Evaluation

Table of Contents

- Introduction** 1
- Survey Results** 1
 - Demographics 1
 - Program Components 2
 - Student Career Plans 3
 - COVID-19 Pandemic 7
- Summary & Conclusion** 9

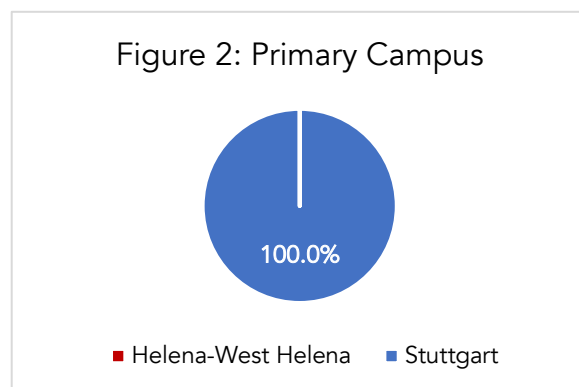
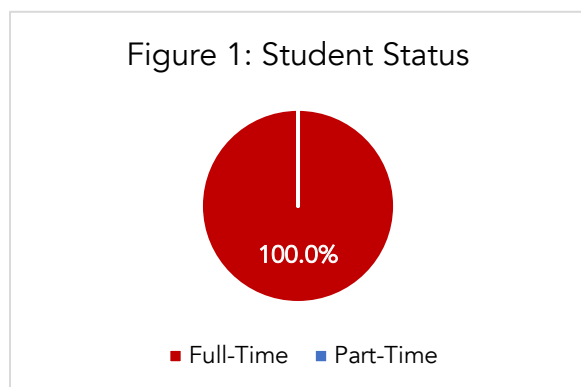
Introduction

Phillips Community College of the University of Arkansas (PCCUA) Advanced Technology Education (ATE) – Delta Information Security and Cyber (DISC) program is now in its third year of operation with sponsorship from the National Science Foundation (NSF). This report summarizes the results of a pre-test survey distributed in Fall 2021 to all new program students. This survey collected data on students' confidence with program skills and concepts, future career goals, and their experiences throughout the ongoing COVID-19 pandemic. In total, seven students responded to the survey, however only four of the seven responded beyond the consent to participate item.¹ Results reported here can help inform the continued development of the PCCUA DISC program.

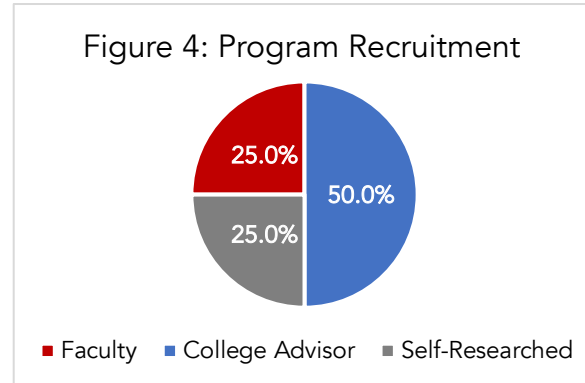
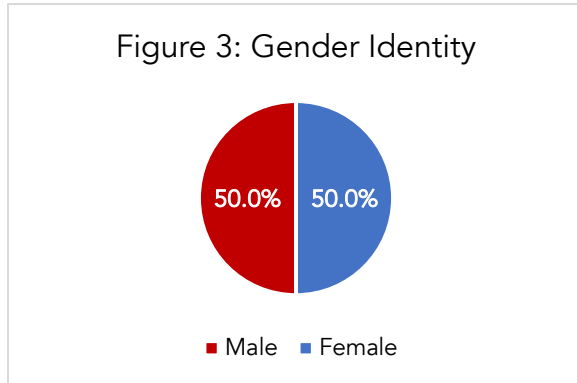
Survey Results

Demographics

The demographic information reported in this section will help provide an understanding of the four new PCCUA students who responded to the pre-test survey. Respondents to this survey are exclusively full-time students who are attending at the Stuttgart campus. There is an even split between students who identify as female and as male. Half of the respondents were recruited by their college advisor, one by a faculty member, and one explains that they found the program independently: *"I was wanting to get a degree within technology and PCCUA is my local college and is affordable."*



¹ The sample size is four (n = 4) throughout the report unless noted otherwise. Valid percentages are calculated based on a sample size of four.



Respondents were asked how the program could recruit more students in the future. Recommendations are to expand advertising efforts and to introduce the program and its components to students at an earlier age in order to boost interest.

Recruitment Recommendations:

"By spreading the word a bit more about it."

"The program is a good program. I think that in order to get more students though you would need to start introducing some programming and cyber security classes in high school or earlier to get kids interested and moving forward on this path of career choices."

Feedback on Program Components

To allow for future assessment of the potential impact of the program curriculum and related activities, respondents of the pre-test survey were asked to indicate their ability to understand and utilize an assortment of skills, concepts, and resources upon entering the program. More specifically, respondents were asked to rate their baseline ability to understand and utilize 10 skills and concepts that are introduced in the program on a scale from "Not At All" (1) to "To A Very Great Extent" (5).

The five concepts and skills listed in Figure 5 (see next page) averaged at or above a 3.50 rating and represent those that received the highest average ratings among respondents. The items in Figure 6 (see next page) are those that averaged below a rating of 3.50, representing the skills and concepts that respondents feel the least able to utilize before entering the program. When beginning the program, students report they are most able to use critical thinking skills effectively (mean = 4.25) and to understand open source materials (mean = 4.00), and least able to configure firewalls/servers for a network environment (mean=2.75), code, debug basic programs, and test applications (mean = 2.75), and to use acronyms/terminology associated with computer and networking technology (mean = 2.75). It is this group of knowledge and skill sets that the program most hopes to build within students by program completion.

Figure 5: Ability to Engage with Program Skills & Concepts - High Ability

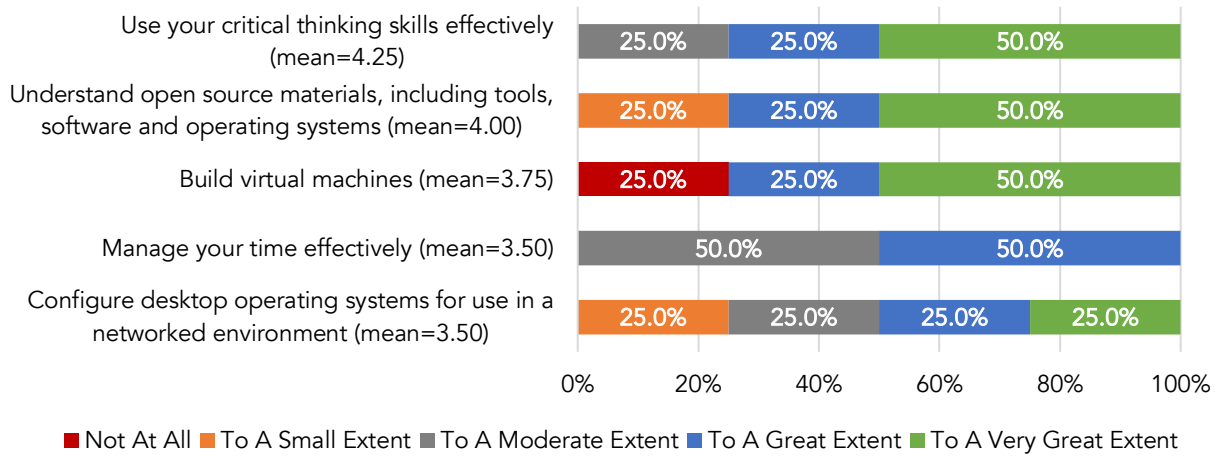
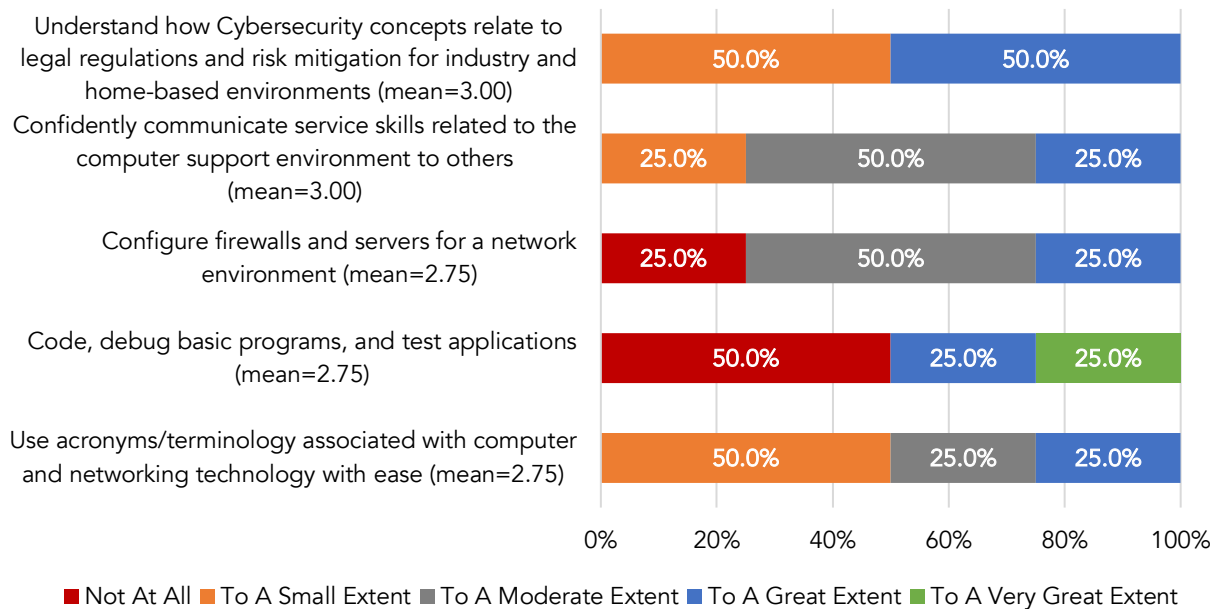


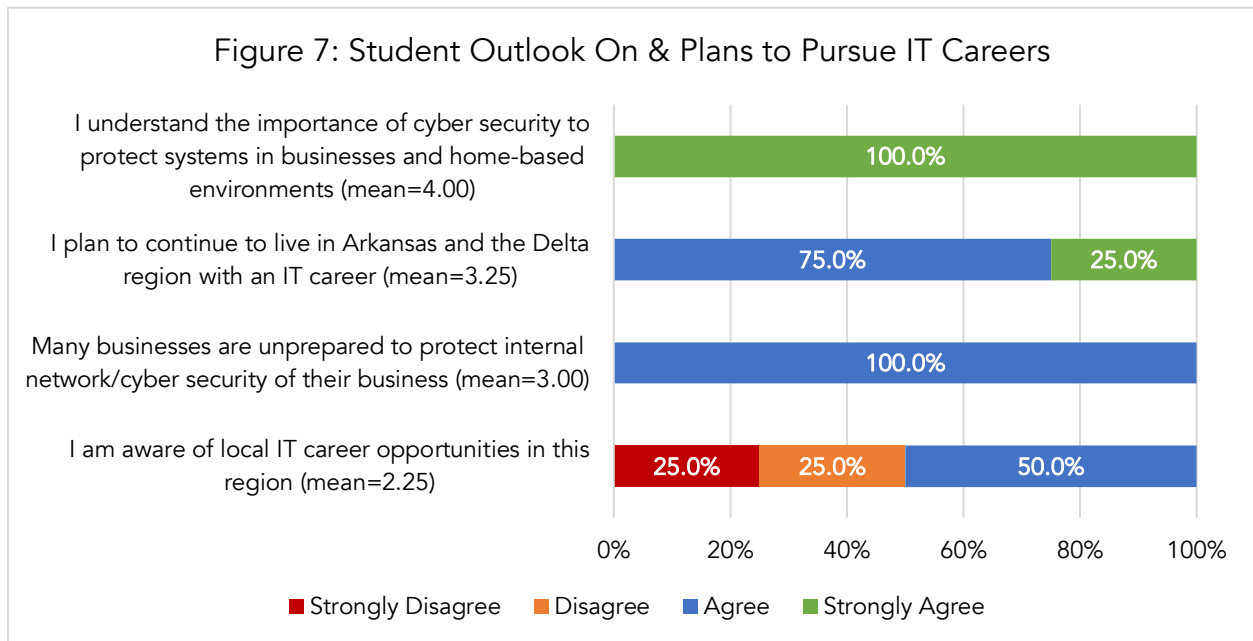
Figure 6: Ability to Engage with Program Skills & Concepts - Low Ability



Student Career Plans

Students were also asked questions related to their knowledge of potential regional IT careers, their interest in career specific certifications, and interest in specific areas of regional employment. To start, students were asked to rate their agreement with several statements regarding their outlook on the job demand for Information Systems Technology in the Delta region and their plans to pursue a related career in the area on a scale from “Strongly

Disagree" (1) to "Strongly Agree" (4). All students either "Agree" or "Strongly Agree" that they understand the importance of cybersecurity to protect systems in business and home-based environments, that they plan to continue living in the Delta region with an IT career, and that many businesses are unprepared to protect the internal network and cyber security of their business. However, only half of these respondents agree that they are aware of local IT career opportunities in the region.



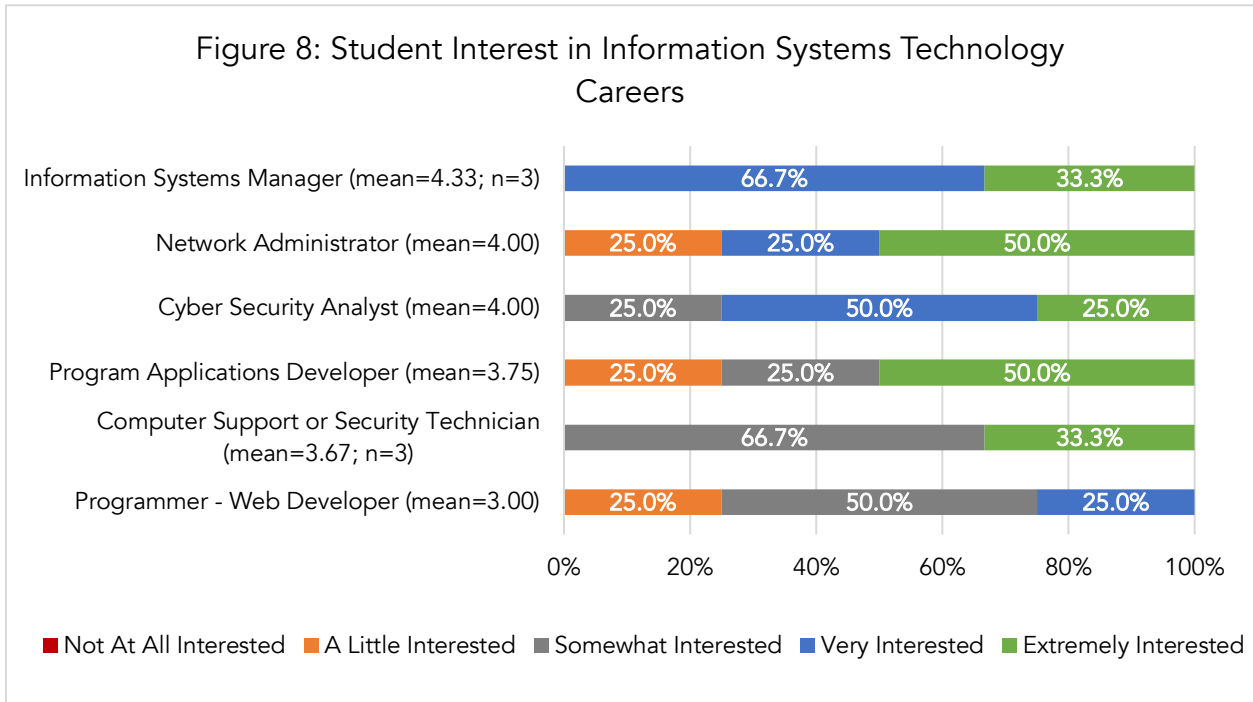
Next, students were asked to explain what most influenced their decision to enter the DISC program. Both of those who provide comment explain that improved employment opportunities influenced their decision to pursue the program.

Respondent Quotes:

"The biggest influence with getting this degree is because of the broad range of categories this degree can be applied in."

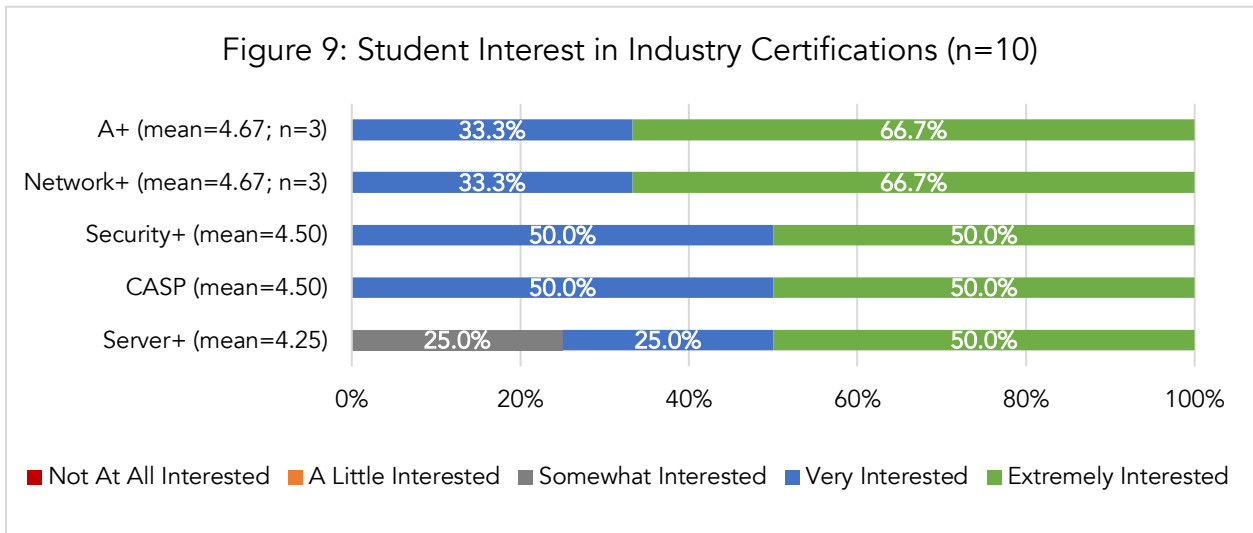
"I was trying to learn it on my own and figure a degree and possibly certificate in the field of study would help me in finding jobs and moving forward in this career."

Provided with six specific careers available to program graduates, respondents were asked to indicate their interest with each on a scale from "Not At All Interested" (1) to "Extremely Interested" (5). In addition, there was an option for students to indicate "Don't Know" for each career. On average, all respondents report being at least "Somewhat" interested in each of the careers, with most potential careers averaging a rating at or near "Very" interesting to the respondents.



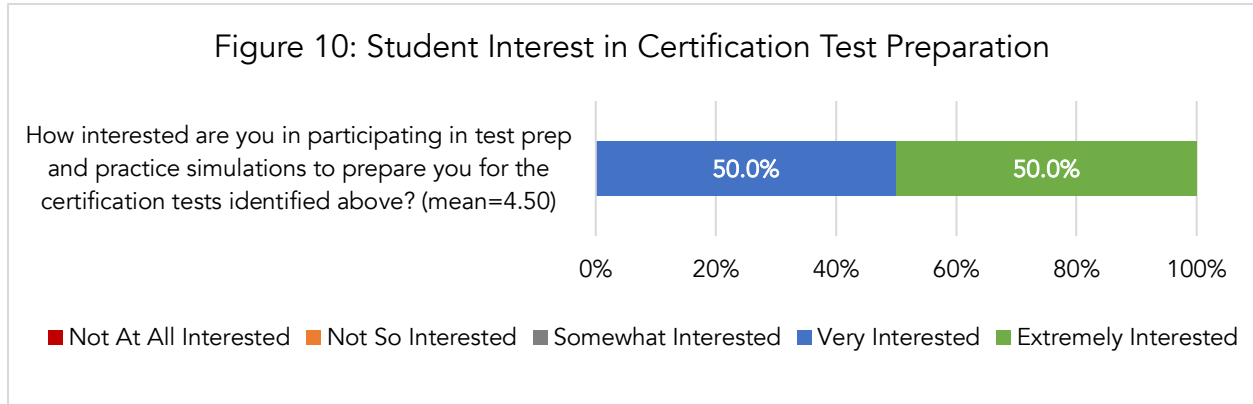
Note: "Don't Know" responses are excluded from mean calculations and figure percentages.

Respondents were also asked to rate how interested they are in earning five specific certifications: A+, Security+, Network+, Server+, and CompTIA Advanced Security Practitioner (CASP). Interest was indicated on a scale from "Not At All Interested" (1) to "Very Interested" (5). In addition, students were able to indicate "Don't Know" for each of the industry certifications. Average responses exceed "Very Interested" for each of the industry certifications.

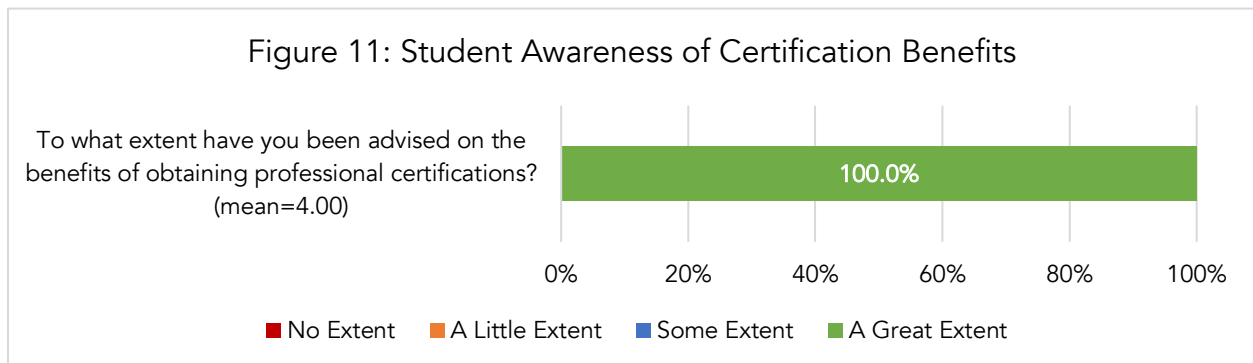


Note: "Don't Know" responses are excluded from mean calculations and figure percentages.

Additionally, all respondents indicate being either “Very” or “Extremely” interested in participating in test-prep and practice simulations to prepare them for the aforementioned certification tests.



To better understand student interest and awareness surrounding these certifications, respondents were 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). Respondents all indicate being advised to “A Great Extent.”



Presented with five different possible career goals, students were asked to indicate which they plan to achieve. All respondents indicate planning on becoming certified as proficient in IST and transferring for a higher degree in an IST field. Three of four respondents indicate planning to graduate with their IST degree, obtain other industry certifications, and become employed in the IST workforce (see Table 1, next page).

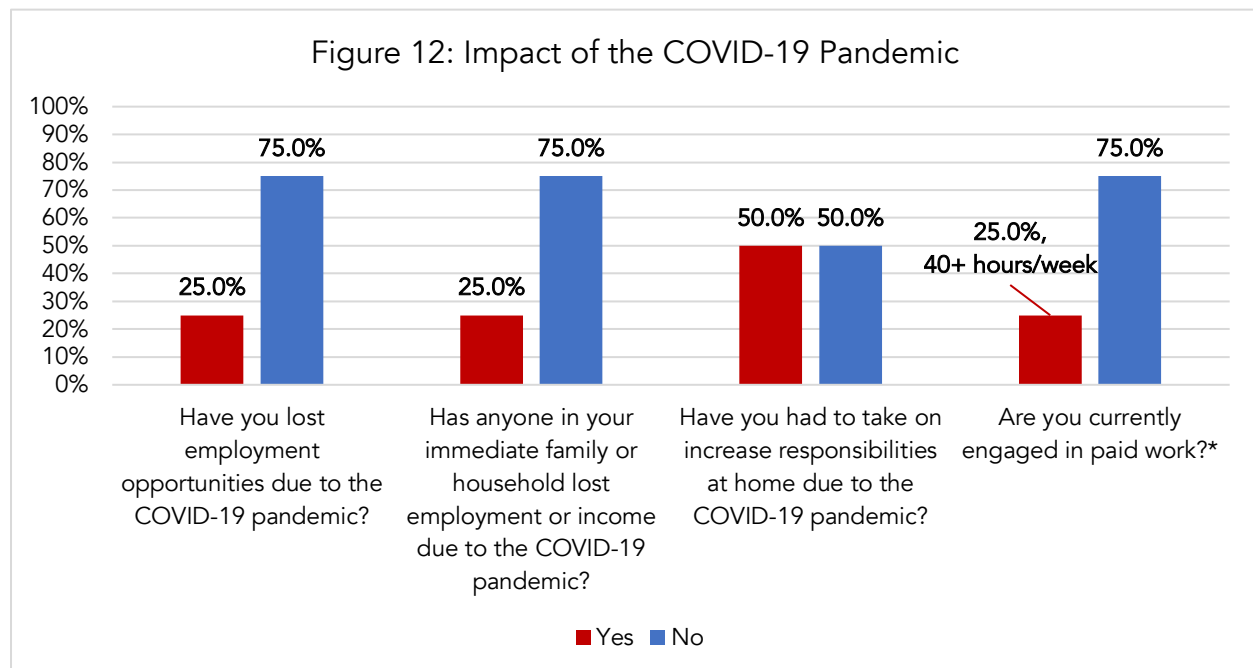
Table 1: Students' Current Career Goals

	%
<i>I plan to achieve certificates of proficiency in Information Systems Technology</i>	100.0%
<i>I plan to transfer for a higher degree in the Information Systems Technology field</i>	100.0%
<i>I plan to graduate with an Information Systems Technology degree</i>	75.0%
<i>I plan to obtain other industry certifications</i>	75.0%
<i>I plan to become employed in the Information Systems Technology workforce</i>	75.0%

Note: Total exceeds 100% because respondents were asked to "choose all that apply."

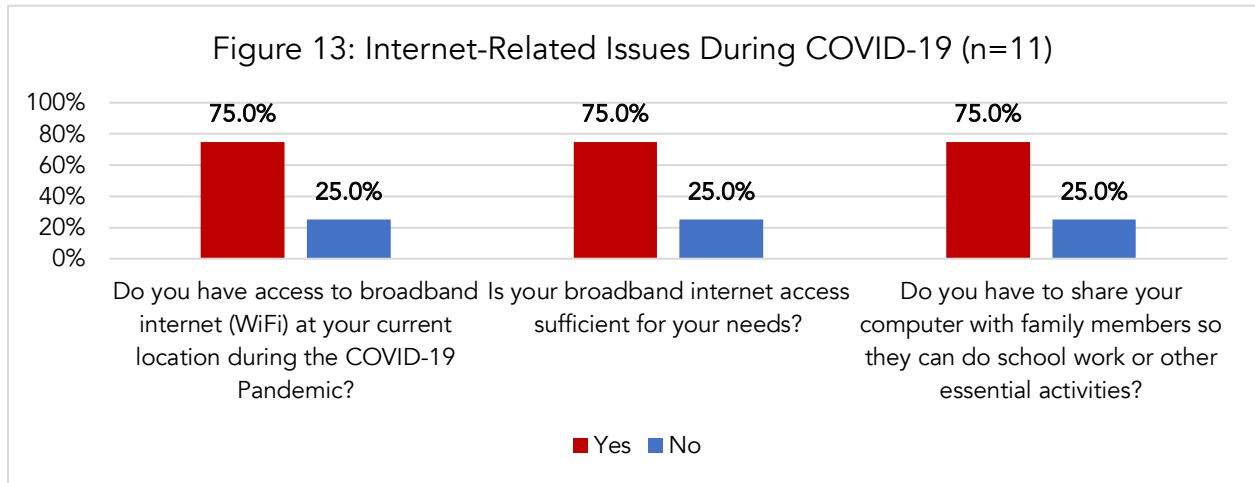
COVID-19 Pandemic

Due to the ongoing COVID-19 pandemic, PCCUA is concerned about the resources available to their students. For this reason, a series of questions regarding financial strain, Internet access, and other pandemic related issues were posed. Students were first asked whether they have lost current employment opportunities due to the pandemic and one of four respondents indicated that they have. Asked if anyone in their immediate family or household has lost employment or income due to the pandemic and one of four respondents indicates that they have. Asked to provide approximately how many hours per week they spend on paid work, three of four respondents provide that they are not currently employed. The one currently employed respondents works 40 or more hours per week. Additionally, half of the respondents have had to take on additional home responsibilities because of the COVID-19 pandemic.

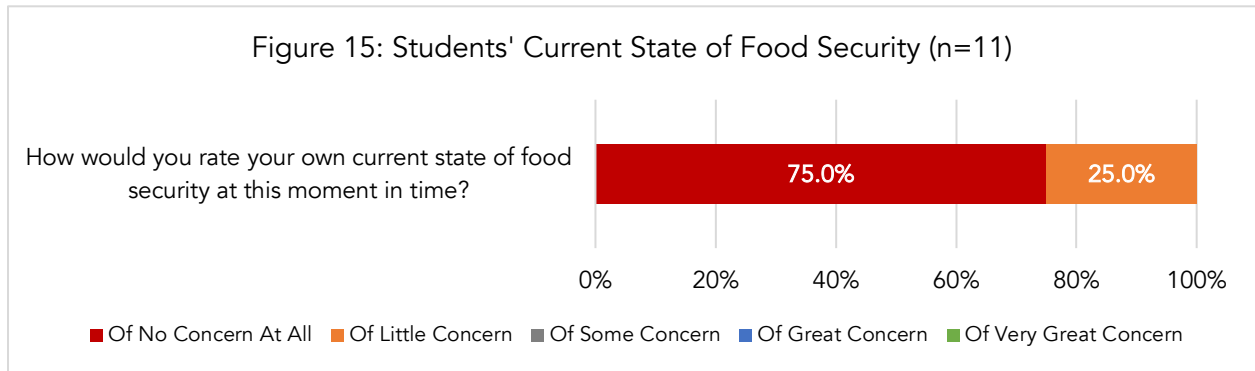


* Respondents were able to indicate how many hours a week they work with five ordinal categories ranging from <10 to 40+ hours/week.

Respondents were also asked about their Internet and computer access during the pandemic. Three of four respondents indicate that they have access to broadband Internet at their current location, that this Internet access is sufficient for their needs, and that they use a shared computer for schoolwork. Respondents were also asked if they mainly access the Internet at home or only through their phone; all four respondents indicate being able to access the Internet at home.



Additionally, students were asked about their housing stability and food security during the COVID-19 pandemic. All respondents report not having to move to a new place of residence within the last eight months, one respondent indicates their current state of food security is of “Little Concern,” and the remaining three rate theirs as of “No Concern At All.”



When asked to elaborate further on how the COVID-19 pandemic has affected their personal lives, one respondent explains that they are in need of employment that doesn't involve regular contact with the general public.

Personal Impacts of the COVID-19 Pandemic

"I lost my job due to the store closing and I am currently on unemployment. Me and my wife just had a baby, so things are bit hectic. I will need to start looking for jobs soon and daycare, but due to newborn I would wish to stay away from working with the public as I have done in past."

Lastly, respondents were asked what, if any, supports or resources they need to help better manage their school and personal obligations during the pandemic. One respondent provided that information on program-related job postings would be beneficial.

Need for Additional Supports & Resources

"Any news of job opening that might help me within my field of study would be nice."

Summary & Conclusion

Results for this Year 3 pre-test survey are restricted by their response rate: seven students agreed to respond, only four provided data beyond this agreement, and all of these respondent are students on the Stuttgart campus (leaving pre-test measurements for Helena-West Helena students unobtained). Despite this limitation, respondents echo the data collected from previous cohorts.

New PCCUA ATE-DISC students reveal that they are confident in their ability to engage with program skills and concepts, with the highest confidence given for use of critical thinking skills, understanding open source materials, and building virtual machines. Even those skills and concepts with the lowest average confidence rating by respondents (configuring firewalls and servers, coding, debugging programs, and testing applications, and using acronyms and terminology) receive moderate confidence ratings.

Respondents indicate that employment is a central aspect of their participation in the program. Multiple students state this qualitatively and reported careers goals support these statements. With this, all respondents recognize the importance of cybersecurity and that many businesses are unprepared to ensure their own cybersecurity. Even further, all respondents currently intend on living in the Delta region while working in an IT career. However, only half are aware of local IT career opportunities, and employment support was identified as a desired resource while in the program. New students, then, are in line with current program students in wanting to both stay local if possible and get program support in finding degree-related work. Respondents to this survey indicate being most interested in information systems manager positions, network administrator positions, and cyber security analyst positions. Relatedly, they are highly interested in receiving multiple industry certifications and hope that the program will provide certification preparation to further this goal.

The COVID-19 pandemic has impacted some of these students, as one respondent indicates that they and their family members have lost employment as a result of the pandemic, that their home responsibilities have increased, that they do not have Internet access at home, or that the Internet access they have is insufficient for their needs. No respondents feel that their current food stability is of more than "Little Concern," and all respondents have been in their current housing for at least the past eight months.

Given the results presented in this report, the evaluators recommend the following:

- Seek ways to guide students to employment and internship opportunities early. Students, even those seeking to continue on to four-year degree programs, hope that their time at PCCUA will yield employment opportunities, despite recognition that these opportunities are limited locally.
- Internet access continues to be insufficient for some students. Using program resources to bolster student access to Internet and computers will be important for promoting success.
- As all respondents indicate transferring to earn a higher degree, provide students with resources on how to select programs, market themselves to competitive programs, and ensure student confidence in their ability to succeed beyond PCCUA and into further education or a new career.

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