

1,004

Champlain College Online fielded an online survey through Engine Insight's Online CARAVAN® Omnibus with a randomized, nationally representative sample of 1,004 US adults ages 18 and above.



**THE STATE OF THE  
CYBERSECURITY WORKFORCE  
AND HIGHER EDUCATION**



CHAMPLAIN  
COLLEGE  
ONLINE /

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## SOURCE OF DATA

Champlain College Online fielded an online survey through Engine Insight's Online CARAVAN® Omnibus from June 21 to June 24, 2018, with a randomized, nationally representative sample of 1,004 US adults ages 18 and above.



**1,004 ADULTS  
18 YEARS OLD +**



## PURPOSE OF SURVEY

Cybersecurity is becoming increasingly important in today's digital world, and as a result, the need for well-trained cybersecurity professionals is becoming critical for many organizations across all industries and sectors. Given this, the purpose of this survey was to assess American's opinions on, and awareness of, the cybersecurity field, and the role higher education plays in it.

As noted by CyberSeek, a cybersecurity career resource supported by the National Initiative for Cybersecurity Education (NICE), a program of the National Institute of Standards and Technology in the U.S. Department of Commerce, "from April 2017 through March 2018, there were 109,000 openings for Information Security Analysts, but only 105,000 workers currently employed in those positions – an annual talent shortfall of 5,000 workers for cybersecurity's largest job. There are 200,000 additional openings requesting cybersecurity-related skills, and employers are struggling to find workers who possess them. Jobs requesting cloud security skills, for example, remain open 96 days on average – longer than any other IT skill."

The need for cybersecurity specialists is clear - both from the perspective of employers, and from that of the general population, who see media coverage of massive data breaches on a near-daily basis. But how do we create a growing, highly-qualified pool of cybersecurity applicants to fill these critical roles? Organizations across sectors and industries must work together to identify the untapped potential of those not currently in the field, conduct targeted outreach to promote awareness, and create systems of support to build sustainable pathways to a cybersecurity career.

The topics covered in this survey include:

- Concern over personal impacts of cybersecurity threats
- Confidence in the ability of a variety of organizations in the United States to address cybersecurity issues
- The role of higher education institutions in creating cybersecurity solutions
- Interest in returning to school to obtain a degree or certificate in preparation for a cybersecurity career
- Representation of women in the cybersecurity field



# THE MAJORITY OF AMERICANS ARE CONCERNED ABOUT CYBERSECURITY THREATS

# 88%

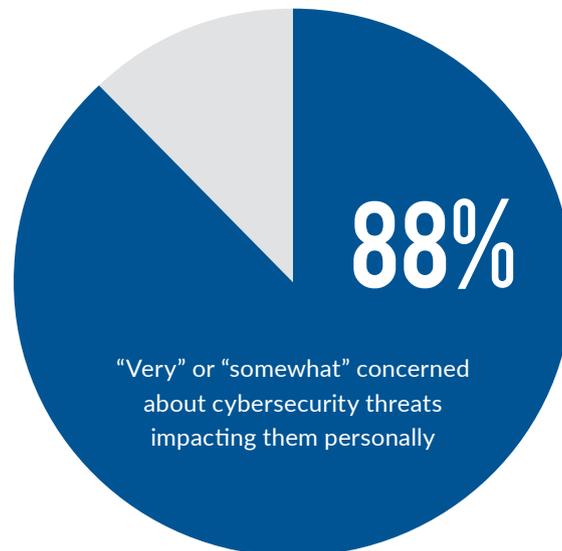
Are “very” or “somewhat” concerned about cybersecurity threats impacting them personally



# 72%

Would pursue a cybersecurity education if it were paid for by their employer

# HOW CONCERNED ARE ADULTS ABOUT CYBERSECURITY THREATS, SUCH AS HACKING, DATA BREACHES, PHISHING, ETC. IMPACTING THEM PERSONALLY?



## OLDER RESPONDENTS MORE CONCERNED THAN YOUNGER RESPONDENTS

Respondents between the ages of 54-72 are much more likely to be “very concerned” about such threats, with 50% of them reporting this to be the case.

Respondents between the ages of 20-37 are less likely to be concerned; only 39% said they are “very concerned.”

### TAKEAWAYS

The vast majority of respondents - 88% - are concerned about the impact of cybersecurity threats on their own lives. Given publicity around massive data breaches and privacy issues in today’s media landscape (for example, the Equifax data breach, or Facebook’s recent privacy scandals), it’s not surprising that cybersecurity is on the minds of most Americans. The fact that concern is high across all age groups is yet another indication of how aware the general population is of cybersecurity threats; while in the past, this awareness might have been limited to individuals in technology-focused careers or with a special interest in the cybersecurity field, today, a much wider population has a basic understanding of the digital threats we face - both as individuals and as a nation - on a daily basis.

# CONFIDENCE IN THE ABILITY OF DIFFERENT ORGANIZATIONS TO CREATE SOLUTIONS THAT REDUCE CYBER THREATS

## INSTITUTION / PERCENTAGE THAT ARE CONFIDENT

Respondents were asked to assess the ability of different institutions and organizations working to address cybersecurity issues in the United States.

Private Sector	71%	Colleges & Universities	68%	Government	52%
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### Private Sector (71%):

- Younger respondents (millennials, between the ages of 20-37) are most confident in the private sector; older respondents (Baby Boomers, between the ages of 54-72), are significantly more likely to say they are not confident in the private sector than millennials, with 41% expressing a lack of confidence as compared to 23% of millennials
- Those who have completed some college, or hold a college degree, are significantly more likely to express confidence in the private sector than those who hold a high school diploma or less (75% vs. 66%)

### Colleges & Universities (68%):

- Only 24% of 18-34 year olds are very confident in the ability of colleges and universities to address cyber threats
- 32% of individuals say they are not confident in colleges and universities
- Those with incomes under \$50,000 are significantly more likely to be confident in colleges and universities than those with incomes over \$75,000

### Government (52%):

- Millennials are significantly more likely to be confident in the government than Baby Boomers, with 58% of millennials expressing confidence in the government's ability to address cyber threats versus 45% of baby boomers expressing confidence
- Those with a high school diploma or less are significantly more likely to be confident in the government than college graduates, with 17% and 9% expressing confidence, respectively
- Nearly half of individuals overall (48%) are not confident in the government's ability to address cybersecurity threats

## TAKEAWAYS

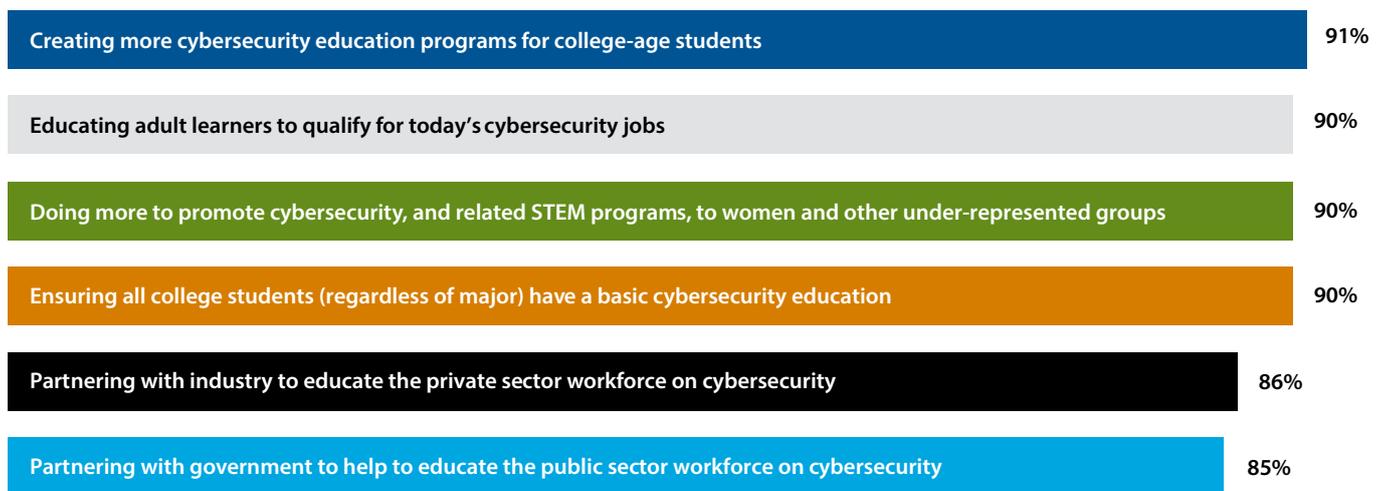
Of the institutions being considered, respondents were most confident in the private sector. Given the perceived agility and innovation coming out of the private sector, particularly in technology-focused businesses, this confidence makes sense - people perceive the private sector as having the resources to come up with effective and dynamic solutions quickly. The government, on the other hand, has many other priorities to address in addition to cybersecurity, and so their ability to move quickly on cutting-edge solutions may not be as strong as that of the private sector - hence the lower confidence rate.

While colleges and universities were still ranked highly in terms of confidence in their ability to address cybersecurity issues, their potential role is perhaps less clear to respondents than the roles of the private sector and the government (bringing innovative solutions to market quickly, and protecting citizens to the best of their ability, respectively). As we continue to have national conversations about what higher education should look like, what the value of a degree truly is, and whether college is worth the high tuition, it makes sense that respondents - particularly younger individuals, who are currently facing their first tuition bills - would be skeptical as to how colleges might play a role in creating solutions to address national cybersecurity issues.

# ROLES COLLEGES AND UNIVERSITIES COULD PLAY IN ADDRESSING CYBERSECURITY ISSUES AND CREATING SOLUTIONS THAT REDUCE CYBER THREATS AND IMPROVE INFORMATION SECURITY IN THE UNITED STATES.

To help respondents get a sense of how colleges and universities might work to create solutions to reduce cyber threats and improve information security, respondents were given a series of potential roles that higher education institutions might play in addressing cybersecurity solutions.

## Solutions and percentage agreement:



- Those with a college degree are significantly more likely to believe that colleges should be creating more cybersecurity education programs for college-age students than those without (95% of college graduates vs. 89% of those with a high school diploma or less)
- 88% of women believe that colleges should be ensuring all college students (regardless of major) have a basic cybersecurity education - significantly more than men, at only 83%

## When asked to provide additional potential roles for colleges and universities in addressing cybersecurity issues, the following were the top ideas identified by respondents:

- Training and educating users on identifying and prevent cybersecurity threats (16%)
- Protecting private information and accounts (13%)
- Being proactive, taking precautions, and using the latest technology to prevent security breaches (10%)
- Creating and developing new cybersecurity solutions (10%)
- Conducting and providing research and studies on cybersecurity (8%)
- Using their knowledge, and the brightest young minds at their institutions, to address cybersecurity issues (7%)

## TAKEAWAYS

It's clear that individuals see the greatest benefit of higher education in addressing cybersecurity issues as being its ability to educate students and prepare them for work in this important field, with the top roles for colleges and universities all relating to education, training, and promotion of tech-focused programs. It's also important to note the fact that respondents recognize the importance of giving all students a basic understanding of the field - indicating that most people see cybersecurity as a skill that is important for everyone, regardless of industry or sector, to have. As indicated in the first question, regarding personal concern over cyber threats, cybersecurity is such a pervasive issue that it's no longer just the domain of technology experts - it's something that has the potential to affect everyone, and is therefore everyone's responsibility. Our best chance of addressing cybersecurity threats as a nation is to have a well-trained workforce, and colleges and universities are well-equipped to get us there.

# WOULD ADULTS CONSIDER GOING OR RETURNING TO COLLEGE - EITHER ONLINE OR ON-CAMPUS - TO EARN A CERTIFICATE OR DEGREE TO PREPARE THEM FOR A JOB IN CYBERSECURITY?

# 41%

of individuals *would consider returning to college* to earn a certificate or degree to prepare them for a job in cybersecurity

## THOSE UNDER THE AGE OF 44

are significantly more *likely to consider getting a degree* to prepare them for a cybersecurity career than those above the age of 45

### *Of those who said they would consider pursuing a cybersecurity education, the top five reasons included:*

Job security and demand in the field	8%
The desire to help and protect people, and to make a difference	7%
Interest in the field	5%
Better pay and the opportunity to make good money	5%
The desire to learn and continue their education	5%

### TAKEAWAYS

The high number of respondents who would be willing to pursue a cybersecurity education is telling - people understand that cybersecurity is a growing, and lucrative field, as demonstrated by the reasons they gave for considering the return to school. Unsurprisingly, younger individuals, who have spent less time in their respective career paths, are more likely to consider making a career change and trying their hand at a new field.

# WOULD ADULTS CONSIDER GOING OR RETURNING TO COLLEGE TO EARN A CERTIFICATE OR DEGREE TO PREPARE THEM FOR A JOB IN CYBERSECURITY AT THEIR CURRENT ORGANIZATION IF THEIR EMPLOYER PAID FOR IT?



***Those most likely to consider pursuing a cyber education if it were funded by their employer were those between the ages of 35-44***

## TAKEAWAYS

When presented with the idea of going back to school to pursue a cybersecurity education if it were paid for by their employer - and in preparation for a cyber-specific role within their existing organization - the number of respondents who would be willing to consider it jumped 31%, to a total of 72%, while the number of those who wouldn't consider it dropped from 59% to just 28%. This indicates that cost, and employer support, are critical barriers preventing those who might otherwise consider a cybersecurity career to actually pursue one. This is good news for employers, given the rise in cybersecurity as an organizational priority across all industries and sectors; these findings indicate that employers have a ready and willing pool of potential cybersecurity employees within their existing workforce, if they're willing to spend the time upskilling them and giving them the training they need. Employers could improve employee retention and engagement, present new opportunities for advancement, and avoid the costs and challenges of recruiting new workers in the cybersecurity field by pursuing this option.

# THE PRIMARY REASONS FOR NOT RETURNING TO COLLEGE TO PURSUE A CYBERSECURITY EDUCATION FOR PREPARATION FOR A JOB IN THE FIELD

Of those who said they would not consider returning to college for a job in cybersecurity, these were the primary reasons:

It's too late for me to consider a career change	22%
I am happy in my current field or career path	21%
Cybersecurity is just not of interest to me	14%
I lack the time and/or financial resources to do so	14%
I don't think I have what it takes to be successful in a technical field	10%
I don't know enough about the field to consider a change	7%

**1/3** of individuals **ages 55-64** said it was too late for them to consider a career as did **20%** of **45-54 year olds** and **13%** of **35-44 year olds**

Those **above the age of 65** were most likely to say they didn't think they had what it takes to succeed in a technical field



**Women** are significantly more likely than men to say they don't think they have what it takes to be successful in a technical field (13% of women vs. 6% of men)



Those **under the age of 55** are significantly more likely to say they lack the time and resources to pursue a cybersecurity education than those above, as did **individuals with children** or **households of three people or more**



Those with a **high school diploma or less** are significantly more likely to say they don't think they have what it takes to be successful in a technical field than those with some college education or a degree

## TAKEAWAYS

It's interesting to note that the top reason given for not considering a cybersecurity education and career is "it's too late for me to consider a career change," representing nearly a quarter of responses. While there were some respondents for whom such a response would make sense - for example, those nearing retirement age - the majority of those who gave this response were significantly younger, and were in fact in prime career-changing years. 20% of individuals between 45 and 54 felt that it was too late to change careers, as did 13% of 35 - 44 year olds. These individuals have lengthy careers ahead of them, and would have ample time to retrain and enter a new, in-demand field such as cybersecurity if they had a viable means of doing so. A lack of time and resources is another significant barrier; unsurprisingly, those with families and young children saw this as a bigger challenge than those without. This further reinforces the importance of employer support in making such career shifts - if they had an employer willing to fund their education and facilitate the career transition, it's likely that some of these individuals would feel that it was more of an option for them.

Although the belief that one doesn't have what it takes to be successful in a technical field only represented 10% of responses, it's striking that women were almost twice as likely to think this than men, and that those who haven't been to college believe the same thing. As has been widely documented, there is a lack of representation for women in science and technology fields; this is due less to an aptitude for this kind of work and more to perceptions that it's not meant for them. Doing outreach to underrepresented groups such as women and minorities, as well as to individuals who may have an interest in the field despite a lack of a college education, and showing them how they could build the necessary skills and find success in cybersecurity, will be essential in growing the national cybersecurity workforce going forward.

# SHOULD MORE BE DONE TO ENCOURAGE WOMEN TO ENTER THE FIELD OF CYBERSECURITY?

An article on Forbes.com earlier this year estimated that women make up only 10% of the current cybersecurity workforce in the United States. Respondents were asked whether, given that low number, more should be done to encourage women to enter the field of cybersecurity?

85%

85% of respondents believe that more should be done to encourage women to enter the field

65+

Those above the age of 65 are significantly more likely to believe this than any other age group, at 94%

=

Of those who said they thought more should be done, the primary reason why is equality: 28% said that women are just as capable as men, and deserve equal rights, equal pay, and equal opportunities.

♀

Of those who said they thought more should not be done, the primary reasons include the belief that women are not interested in the cybersecurity field (4%), the belief that it was women's decision to make on their own (4%), and the belief that all genders, not just women, need to be encouraged to enter the field (3%).

## TAKEAWAYS

An overwhelming majority of respondents believe that more should be done to encourage women to enter the cybersecurity field, which puts the onus on employers, educators, and organizations to do more to promote cybersecurity as a viable and attractive career choice for women. Taking into account responses received earlier in the survey, it's clear that higher learning institutions have an opportunity to create programs that provide basic cybersecurity instruction to women, and give women the chance to work with mentors, instructors, and local businesses to see how they might fit into a cybersecurity role; additionally, employers looking to recruit more cybersecurity workers have an opportunity to conduct outreach specific to their female employees, giving them a pathway to a career they might not have considered otherwise.

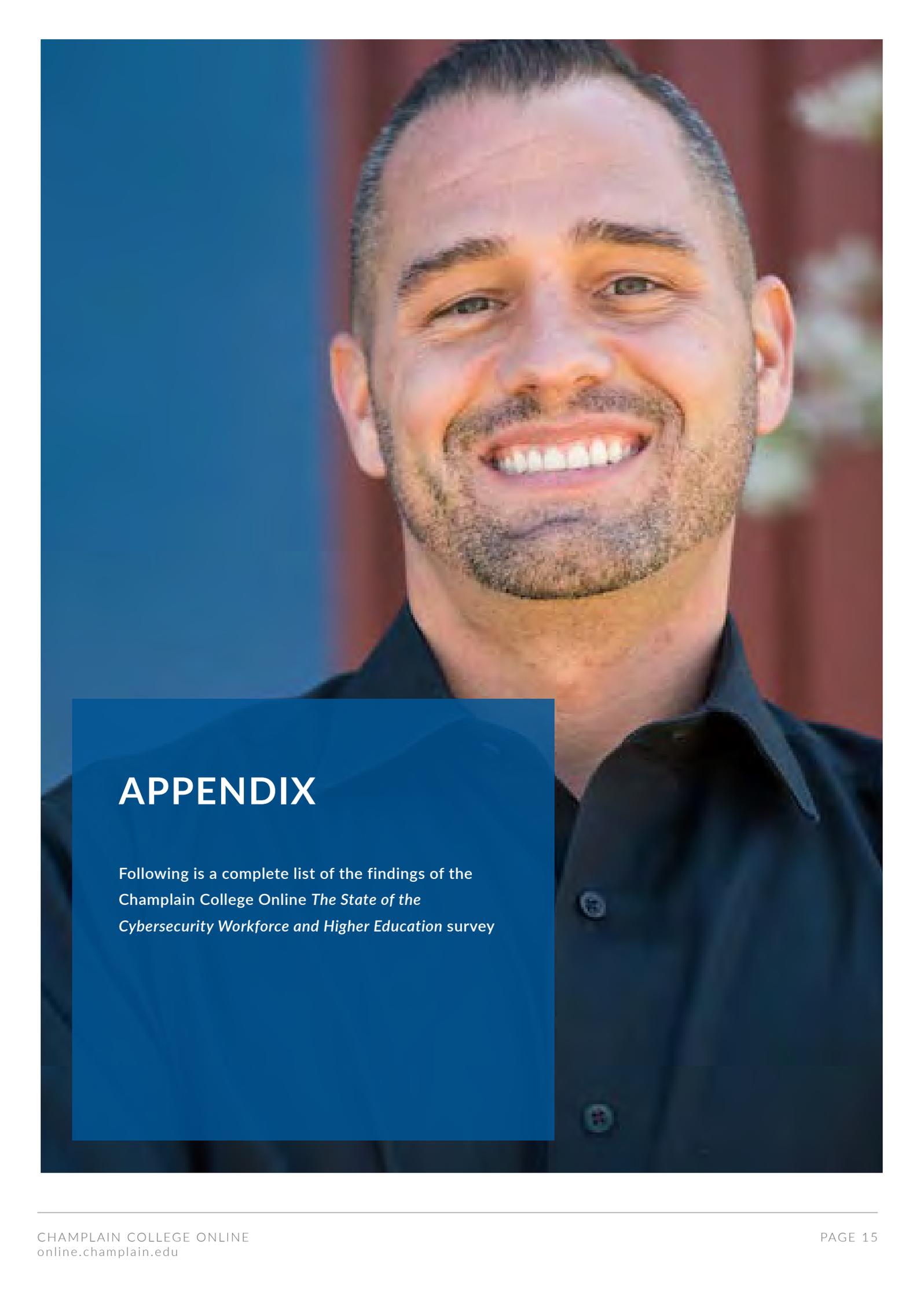
The lack of women in cybersecurity isn't attributed to a lack of aptitude or skill; it is, as evidenced by the significant number of responses to this effect, about opportunity, and giving underrepresented groups the tools they need to be successful in fields where they have not historically had a presence.



## CONCLUSION

As outlined earlier in this report, the need for cybersecurity professionals is critical, with a large number of cybersecurity positions going unfilled and a pool of applicants that doesn't meet the demand for these roles. However, this survey shows that while the need for these workers is great, there is significant interest on the part of adult Americans in upskilling and entering this field - it's simply a question of providing them with the access and support they'll need to obtain a degree and make a career shift.

Given the importance of cybersecurity in today's national landscape, organizations must build the cybersecurity workforce they wish to see - working with colleges and universities to build and promote robust technology programs, conducting targeted outreach to underrepresented groups, providing information on the benefits of shifting careers, and finding ways to attract individuals who may not see themselves as tech-savvy enough to enter the field. The interest is there - organizations must now build on it.



# APPENDIX

Following is a complete list of the findings of the Champlain College Online *The State of the Cybersecurity Workforce and Higher Education* survey

# COMPLETE FINDINGS

## APPENDIX

**Q.S1. How concerned are you about cybersecurity threats, such as hacking, data breaches, phishing, etc., impacting you personally?**

Very/Somewhat Concerned	88%
Not Too/Not At All Concerned	12%

**Q.S2. Below are some different institutions and organizations that are working to address the cybersecurity issues in the United States. That is, working to reduce cyber threats and improve information security. Please rate your confidence in the ability of each institution or organization to create solutions that reduce cyber threats and improve information security in the United States.**

Private Sector	71%
Colleges and Universities	68%
Government	52%

**Q.S2A. Below are some different institutions and organizations that are working to address the cybersecurity issues in the United States. That is, working to reduce cyber threats and improve information security. Please rate your confidence in the ability of each institution or organization to create solutions that reduce cyber threats and improve information security in the United States.**

Colleges and Universities	
Very Confident	17%
Somewhat Confident	52%
Not Too Confident	26%
Not at all Confident	6%

**Q.S2B. Below are some different institutions and organizations that are working to address the cybersecurity issues in the United States. That is, working to reduce cyber threats and improve information security. Please rate your confidence in the ability of each institution or organization to create solutions that reduce cyber threats and improve information security in the United States.**

Government	
Very Confident	13%
Somewhat Confident	39%
Not Too Confident	32%
Not at all Confident	6%

**Q.S2C. Below are some different institutions and organizations that are working to address the cybersecurity issues in the United States. That is, working to reduce cyber threats and improve information security. Please rate your confidence in the ability of each institution or organization to create solutions that reduce cyber threats and improve information security in the United States.**

Private Sector	
Very Confident	18%
Somewhat Confident	54%
Not Too Confident	24%
Not at all Confident	5%

# COMPLETE FINDINGS

## APPENDIX

**Q.S3. What role, if any, should colleges and universities play in addressing cybersecurity issues – and creating solutions that reduce cyber threats and improve information security – across the United States? Please be as specific as possible.**

Train/educate users on identifying/preventing threats	16%
Don't know	15%
Protect private information/accounts	13%
Be proactive/take precautions/use latest technology/prevent security breaches	11%
Nothing	10%
Create/develop new solutions	10%
Research/provide research/studies	8%
Other responses	8%
Use their knowledge/the brightest/young minds/to address the issue	7%
A large/major role (unspecified)	5%

**Q.S4. Below are some different ideas about the role colleges and universities could play in addressing cybersecurity issues and creating solutions that reduce cyber threats and improve information security in the United States. After you read each one, please rate your level of agreement.**

Creating more cybersecurity education programs for college-age students	91%
Educating adult learners to qualify for today's cybersecurity jobs	90%
Doing more to promote cybersecurity, and related STEM (Science, Technology, Engineering and Math) programs, to women and other under-represented groups	90%
Ensuring all college students regardless of major have a basic cybersecurity education	86%
Partnering with industry to educate the private sector workforce on cybersecurity	90%
Partnering with government to help to educate the public sector workforce on cybersecurity	85%

**Q.S5. Knowing this, would you consider going or returning to college either online or on-campus to earn a certificate or degree to prepare you for a job in cybersecurity?**

Yes, definitely	12%
Yes, probably	29%
No, probably not	38%
No, definitely not	21%

**Q.S6. Why would you consider going or returning to college to earn a certificate or degree to prepare you for a job in cybersecurity?**

Job security/demand	8%
Want to help/protect people/make a difference	7%
Interested/would consider that field	5%
Better pay/make good money	5%
Like to learn/continue education	5%
Want to stop attacks/identity theft/keep my information safe	4%
Increased knowledge/better understanding of Internet/security	4%
Growing field/needs more people	4%

# COMPLETE FINDINGS

## APPENDIX

**Q.S6. Why wouldn't you consider going or returning to college to earn a certificate or degree to prepare you for a job in cybersecurity?**

My age/I am too old	16%
No need/not interested/don't want to	13%
Retired/ready to retire	8%
Already have a job/like current job	8%
Don't want to go to school/back to school/not ready	5%
Dislike/not good with computers/not tech savvy	4%
College is too expensive/have money issues/cannot afford	4%

**Q.S7. If your employer paid for your cybersecurity education (what some refer to as 'technical upskilling') would you consider going or returning to college to earn a certificate or degree to prepare you for a job in cybersecurity at your organization?**

Yes, definitely	33%
Yes, probably	39%
No, probably not	21%
No, definitely not	7%

**Q.S8. Earlier you told us that you would not consider going or returning to college to earn a certificate or degree to prepare for a job in cybersecurity. What is your PRIMARY REASON for not considering going or returning to college to prepare for a cyber security career path?**

It's too late for me to consider a career change	22%
I am happy in my current field or career path	21%
Cybersecurity is just not of interest to me	14%
I lack the time and/or financial resources to do so	14%
I don't think I have what it takes to be successful in a technical field	10%
I don't know enough about the field to consider a change	7%
Other	12%

**Q.S9. Finally, an article on Forbes.com earlier this year estimated that women make up only 10% of the current cybersecurity workforce in the United States. Should more be done to encourage women to enter the field of cybersecurity?**

Yes	85%
No	15%

**Q.S10. Why do you think more should be done to encourage women to enter the field of cybersecurity?**

Equality/women are just as capable as men/equal rights/equal pay/equal opportunities	28%
Other "more should be done" responses	9%
More awareness/advertising towards women	7%
10% is low/not enough women in the field	6%
More/better/earlier educational opportunities/training	6%
Women should be encouraged to enter this field/any field	4%
There is a need/lots of job openings in the field	4%
Women can offer new perspective/different ideas/fresh insight	4%

# COMPLETE FINDINGS

## APPENDIX

### Q.S10. Why don't you think more should be done to encourage women to enter the field of cybersecurity?

Women not interested in this field	4%
Their decision/they can decide	4%
Gender doesn't matter/need to encourage everyone	3%
Other "more should not be done" responses	3%
Fine as it is/no need	1%
Should not encourage a gender ratio	1%
Male dominated/should be for men	0%



## ABOUT CHAMPLAIN COLLEGE ONLINE

At the forefront of one of the most innovative, regionally accredited, not-for-profit colleges in the nation, Champlain College Online prides itself on its long history of providing career-focused education to adult learners. One of the oldest online institutions in the United States, Champlain College Online was established in 1993 by Champlain College, a non-profit private college founded in 1878 and offering a campus undergraduate experience in Burlington, Vermont.

Today, Champlain College Online is consistently ranked by *U.S. News & World Report* as a leader in online higher education, and serves nearly 3,400 students through more than 60 online undergraduate and graduate degree programs and certificates in high-growth fields like cybersecurity, healthcare administration and human resource management. Through the strategic alliance program known as truED, Champlain College Online has pioneered a bold reimagining of workforce development to create additional opportunities for adults to further their education in Champlain College's award-winning online academic programs aligned to needs in government and industry.

For more information, visit [champlain.edu/online](http://champlain.edu/online).



CHAMPLAIN COLLEGE ONLINE /

QUESTIONS ABOUT THIS SURVEY?  
**CONTACT US!**

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