CompTIA

Student Perspectives of Technology and Careers

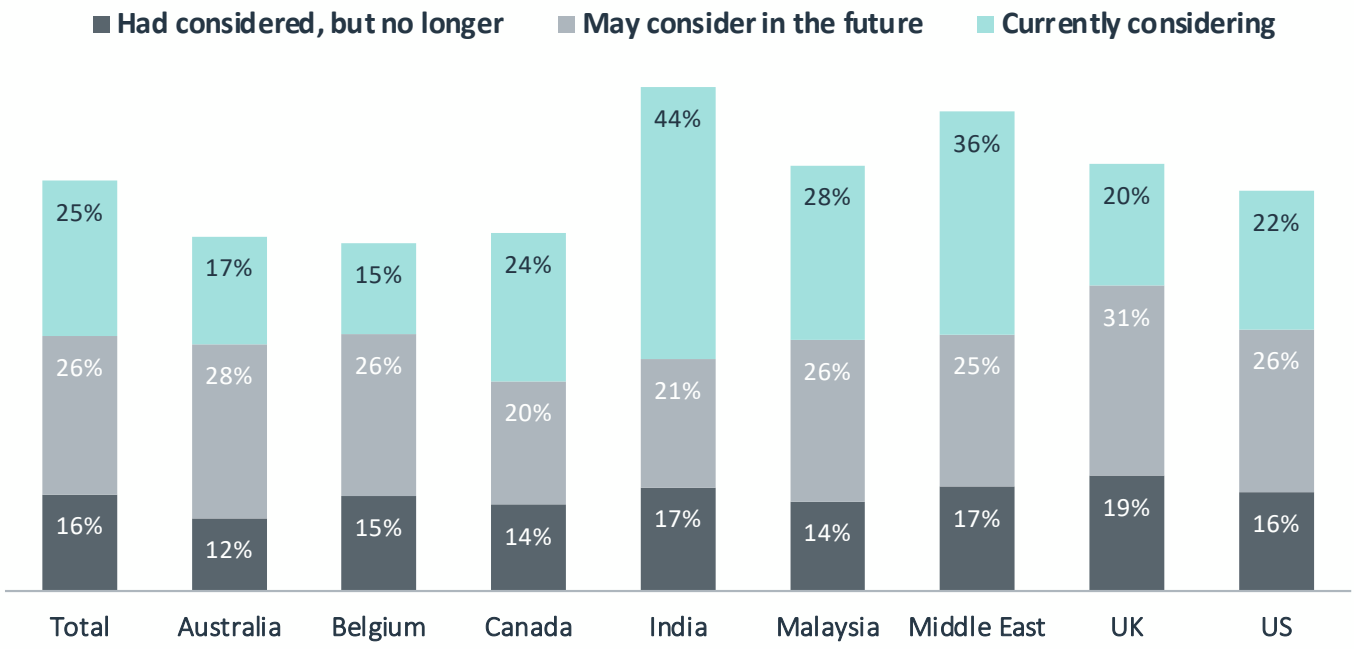
2022

Australia, Belgium, Canada, India, Malaysia, UAE, Oman, Saudi Arabia, United Kingdom, and United States

Student Interest in a Career in Technology

Most young people around the world are thinking about their career options and a clear majority (69%) have some idea of the path they would like to pursue. A career in some aspect of technology is something 1 in 2 are considering or may consider in the future. This is very comparable to the findings from the previous iteration of this study in 2019 when 23% were currently considering and 27% were potentially considering tech careers.

Consideration for pursuing a career in technology

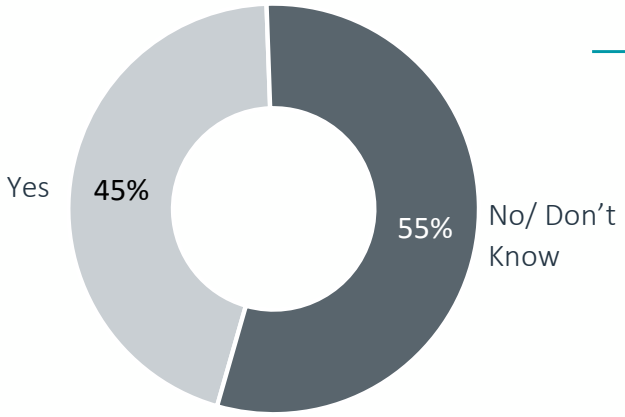


Boys more than girls are currently considering a career in the tech space. The proportion of girls considering a tech career is very comparable to findings from 2019 (41% were considering or might consider a tech career in 2019 versus the 40% today). In India and Malaysia the gap between boys and girls currently considering a tech career is smaller (3 and 4 percentage points respectively) when compared to the other countries in the sample – in the U.S the difference is 19 percentage points.

	International Summary				United States Summary			
	Girls	Boys	Age 13-16	Age 17-18	Girls	Boys	Age 13-16	Age 17-18
Currently considering	20%	31%	22%	28%	14%	33%	27%	20%
May consider in the future	27%	24%	29%	24%	26%	29%	25%	27%
Had considered, but no longer	14%	19%	12%	17%	18%	15%	11%	19%
No consideration or unsure	39%	26%	36%	31%	46%	21%	24%	24%

Student Interest in a Career in Technology Cont.

Incidence of knowing someone that works in a technology field



One important factor in shaping career decisions is exposure to the field. Just about half (45%) of students report knowing someone personally who works in the tech field. Consequently, there are many young people who are missing out on gaining first- hand knowledge of tech careers. However, this is an improvement over the 36% who reported knowing someone who worked in the tech sector in 2019.

Student perceptions of working in a technology field

Top positive perceptions

1. Purpose/Reward of using tech to solve problems [48%]
2. Pays well [45%]
3. Fun, interesting work [36%]
4. Getting to use cool technology [30%]
5. Availability of jobs [23%]

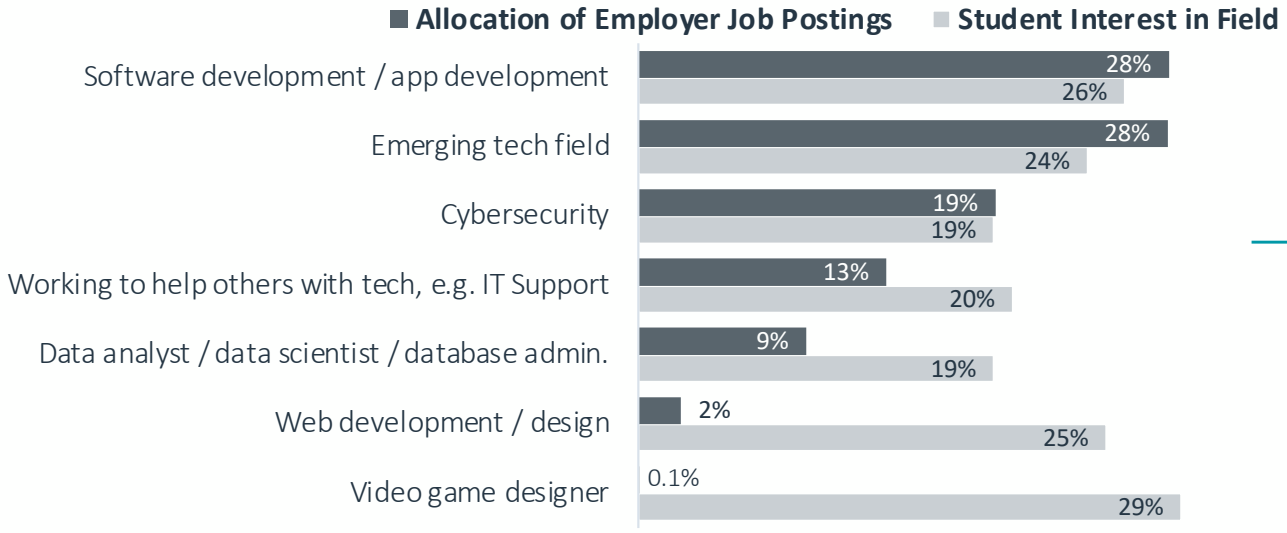
Top negative perceptions

1. Requires good math/science skills [44%]
2. Difficult, complicated work [34%]
3. Working alone on a computer [24%]
4. Boring [11%]
5. Just for tech geeks [10%]

A slightly higher proportion of girls hold the negative perception that working in technology is boring. Boys more than girls believe that working in technology is fun, interesting work that involves playing with cool technology.

In economies like the US there is more of the perception that good math and science skills are a pre-requisite for a job in the tech field when compared to economies like India or Malaysia.

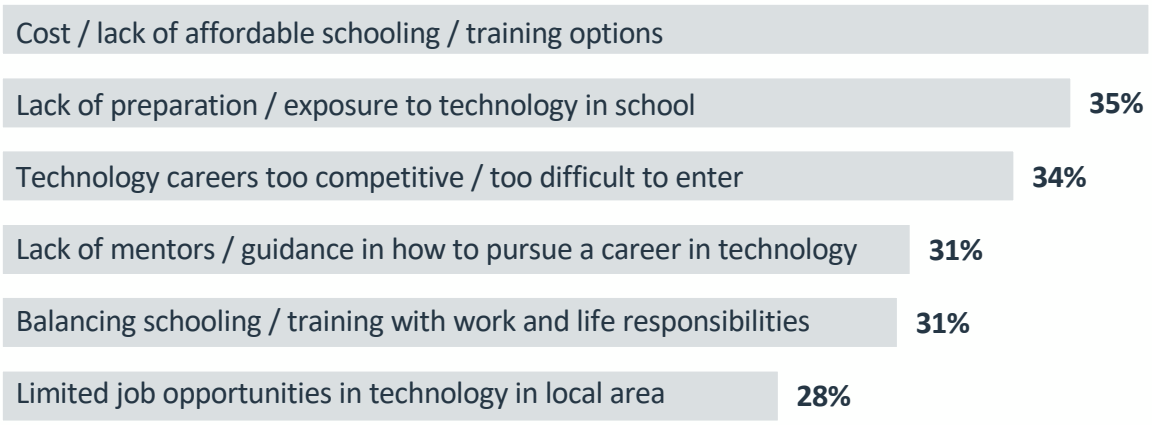
Student interest in specific fields of technology vs. employment opportunity



Because of the falloff rate, student interest in a field should ideally be significantly higher than employer hiring demand. For example, while the cybersecurity field appears to be at equilibrium, only a subset of the 19% of students indicating some level interest will actually reach the point of entering into a cybersecurity job role. Positions such as IT Support and Data Analyst are in closer alignment when accounting for the falloff rate.

Real and Perceived Barriers to Pursuing a Career in Technology

Perceived barriers cited among students in pursuing a career in technology

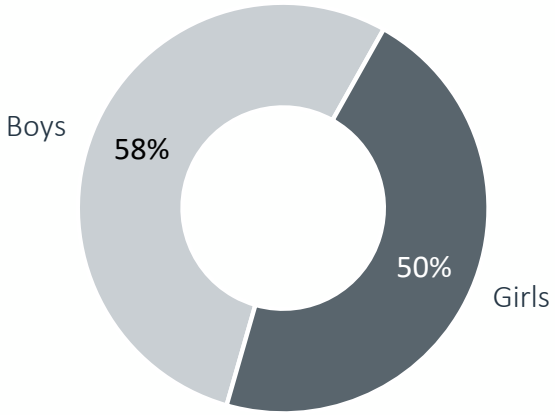


These barriers are more of a reported issue for students in emerging economies.

Boys report receiving higher levels of encouragement to consider a tech career

- The difference is more prominent in countries like the US (51% of boys versus 41% of girls have been encouraged to pursue a tech career) than in India, Malaysia, the Middle East, or the UK.
- When compared to the previous iteration of this study, the encouragement gap has become smaller – the US had a gap of 15 percentage points in 2019 compared to 10 percentage points in 2021.
- The encouragement gap, among other reasons, does contribute to lower rates of consideration for a career in technology among girls.

Addressing the encouragement gap

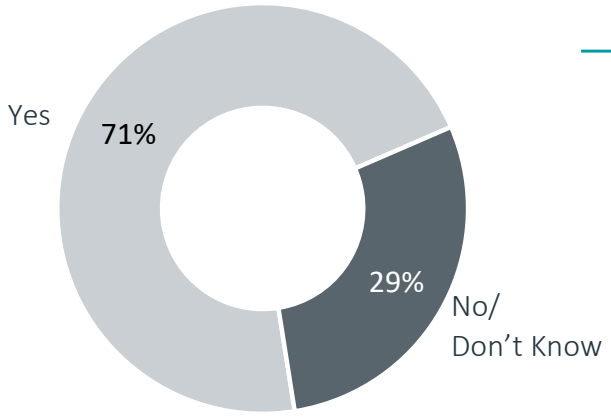


Confidence Gap fears that may inhibit consideration for a career in technology

	Australia	Belgium	Canada	India	Malaysia	Middle East	UK	US
Fear of failure	40%	27%	48%	37%	54%	49%	34%	49%
Fear of skill deficiencies, e.g. math or science	45%	29%	47%	35%	48%	41%	32%	46%
Fear of starting too far behind others	45%	26%	43%	37%	48%	41%	29%	39%
Fear of the unknown	33%	31%	38%	28%	39%	34%	35%	38%

Technology Education and Digital Literacy

Reported incidence of school offering technology education or digital literacy classes



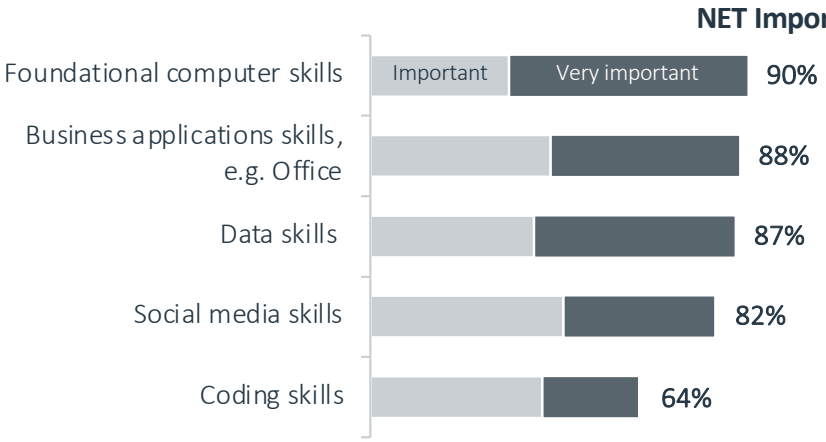
Most students report their schools offer technology/digital literacy classes in the US

- Most of these classes (60%) are classified as electives
- The majority (54%) of teenagers believe it is important to take technology classes at school.
- Most (69%) believe that technology classes teach essential skills.
- Four out of five teenagers (78%) recognize that technology skills are important for future jobs.

Perceived benefit of taking technology education or digital literacy classes

	Total	Girls	Boys	Age 13-16	Age 17-18
Source of skills that will help with school success	56%	60%	52%	51%	58%
Source of skills for future jobs	50%	48%	53%	53%	48%
Starting point for career in tech field	48%	46%	53%	44%	50%
Enhance college application	38%	40%	37%	31%	42%
Pre-requisite for enrollment into higher-level tech classes	32%	32%	31%	33%	31%
Source of skills for vocational career	32%	32%	33%	29%	33%

US student rating of digital skills that will be important to their future

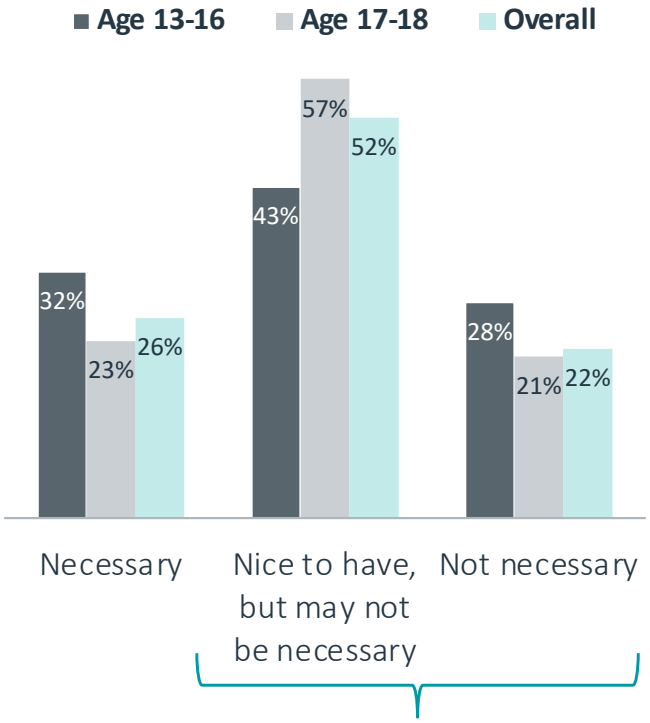


US Students realize that digital skills are eminently transferable to future careers

- More boys than girls believe that coding has applicability to future jobs. Girls find more value in social media skills. This trend was also seen in previous iterations of this study,
- Data skills rate relatively high especially among older teens as they probably have more exposure to data analysis and are able to anticipate the importance of data skills in future endeavors.

Changing Perceptions of the 4-Yr College Degree

US students appear to have mixed feelings regarding the traditional 4-yr college degree

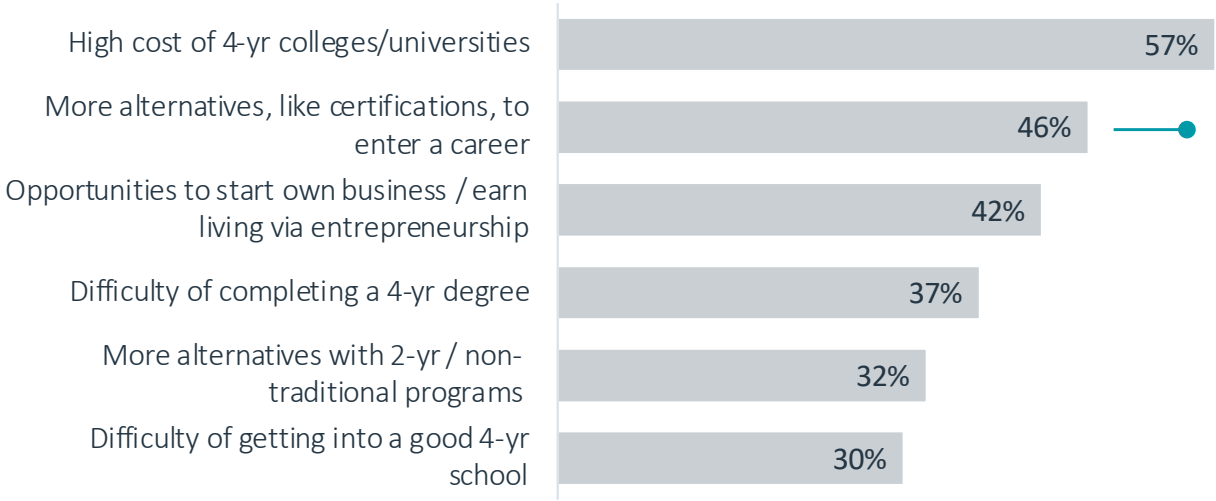


Girls and boys hold similar perceptions of the necessity of a traditional 4-yr college degree in reaching their career and life goals vs. viewing the 4-yr degree as nice to have, but may or may not be necessary.

A 3 or 4 -year college degree is considered more of a necessity in emerging economies (50% say necessary versus 35% say it's a nice to have) when compared to developed economies (28% necessary versus 51% nice to have)

The data suggests a notable segment of students (38%) have shifted their opinion on the necessity of a traditional 4-yr college degree, with more now viewing it as nice to have or unnecessary to reaching their career or life goals.

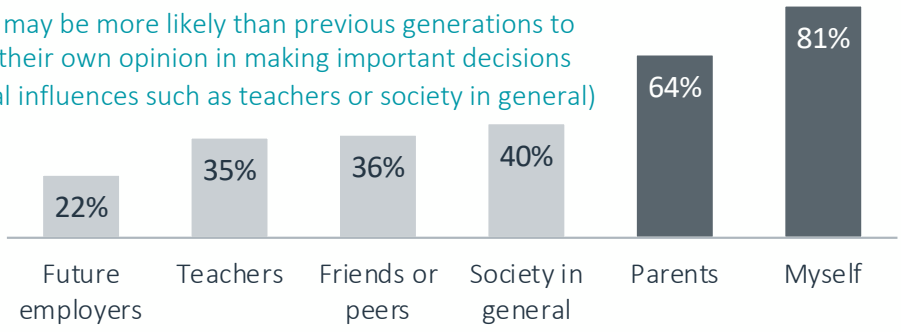
Reported reasons for shift in US student perceptions about 4-year college degree



Slightly higher rate among older students; probably because they are actively considering future steps and have more information.

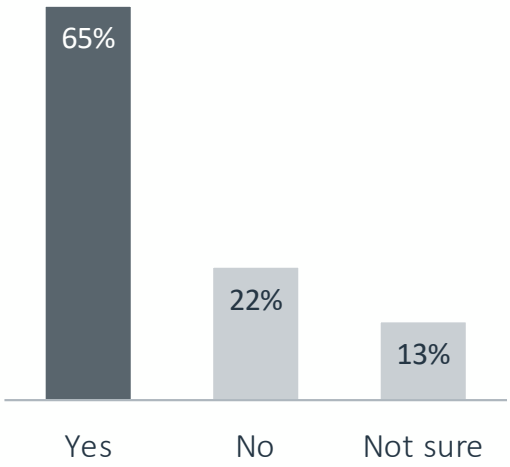
Influences that shape US student perceptions of 4-yr college degree (and alternatives)

The data suggests Gen Z may be more likely than previous generations to place greater weight on their own opinion in making important decisions (and less on conventional influences such as teachers or society in general)



Future of Work on the Minds of Students

Majority of students report seeing or hearing about automating technology and the potential impact on the future of work



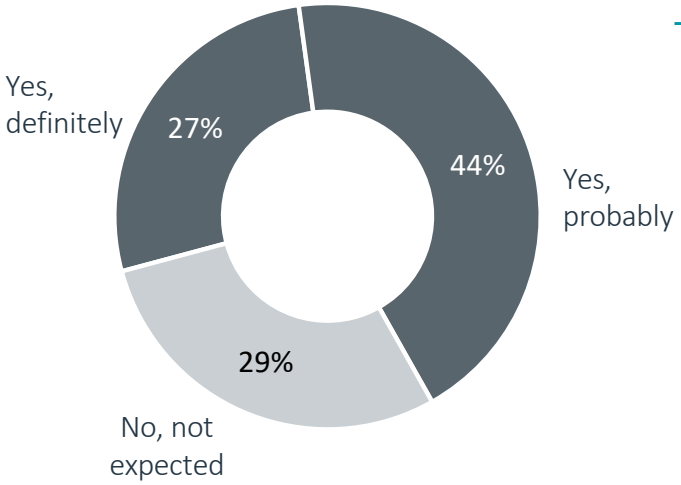
Most familiar with automation trend

- Six in ten students report being familiar with the automation trend and the potential impact on the future of work. The proportion is virtually identical to the proportion familiar with the trend in 2019 (64% in 2019)
- Just about one in five (18%) know someone who has actually lost a job because of robotics/automation technologies. This proportion is very similar to the 15% reported in 2019.

Concern over automating technologies and the potential impact on the future of work

	Australia	Belgium	Canada	India	Malaysia	Middle East	UK	US
Very concerned	16%	20%	20%	40%	26%	26%	23%	20%
Somewhat concerned	48%	52%	44%	38%	44%	35%	45%	46%
Not that concerned	21%	17%	21%	12%	12%	31%	20%	21%
Unsure	15%	11%	15%	10%	17%	8%	13%	12%

Automation spurs expectation of needing additional training

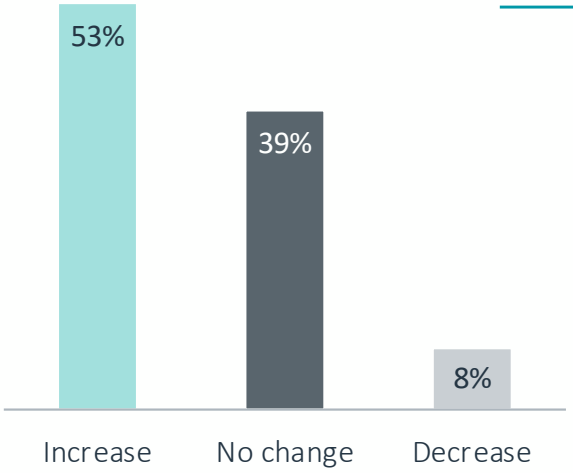


NET 7 in 10 students expect to need additional training due to automating technologies

- Teenagers are concerned about the impact of technology. Seven in ten are concerned about the impact of automation on their future jobs.
- Only one in five are not concerned about the impact of automation. This is a trend we see continuing from 2019.
- The majority of young people astutely anticipate the need for additional training and hands-on experience in various technology disciplines to ensure they are well positioned in the workplace of tomorrow.

Student Perceptions of the Direction of Tech

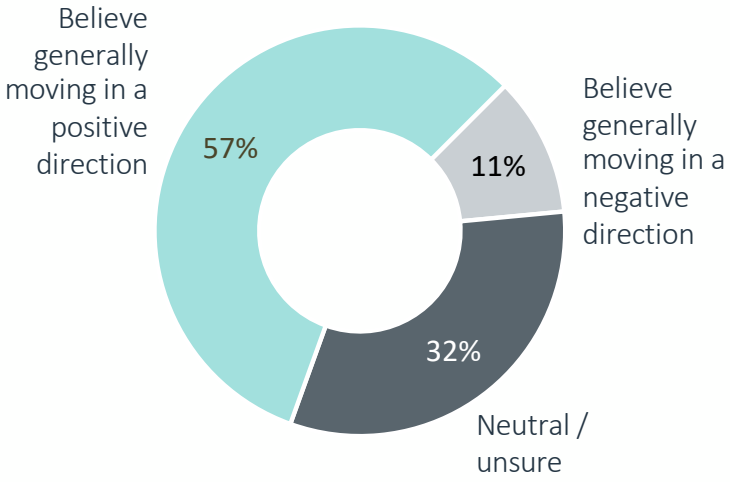
Technology usage and reliance expectations over the next 2 years



Technology is interwoven into the lives of teens and reliance is only going to increase

- A greater proportion of teenagers in the emerging economies covered by this study believe their reliance on technology will increase (61% increase versus 50% in developed economies)
- The proportion noting an increase in their reliance (53%) is practically the same as in 2019 (54%)
- Like in the previous iteration of this study in 2019, 9 out of 10 teenagers connect to the Internet on their mobile phones, confirmation of their need to constantly connect to technology.

Students believe technology is generally moving in a positive direction



Technology is a force for good and moving in a positive direction

- Boys report being more positive about technology with 63% believing it is moving in a positive direction compared to 54% for girls.
- The proportion for boys is practically the same as 2019 but the proportion of girls feeling positive about technology has increased (was 45% in 2019)

Factors cited by students as contributors to positive and negative view of technology

Top drivers of positive view

1. Tech consistently better, faster, more features [59%]
2. Innovation [52%]
3. Opportunities for creative expression [52%]
4. More choices [50%]
5. Narrowing the digital divide [34%]

Top drivers of negative negative view

1. Lack of privacy/control over data [62%]
2. Growing cybersecurity risks [54%]
3. Tech becoming an addiction [50%]
4. Lack of civility/cyberbullying [50%]
5. Too much commercialization [43%]

A higher proportion of girls than boys note the ill effects of technology with respect to privacy, lack of civility/cyberbullying, and the addictive nature of technology.

Boys are more positive about the positive effects of technology when it comes to innovation. The issues of the lack of civility online/cyberbullying and lack of privacy/control over personal data are more of an issue in the developed countries surveyed by this study.

Profiling and Methodology

Methodology

CompTIA's *Student Perspectives of Technology and Careers* study explores what young people (ages 13-18 years) think about a range of issues involving technology, their careers, and the future of work.

The quantitative study consisted of an online survey fielded to 13 to 18-year-old respondents during December 2021-January 2022. A total of 1,671 respondents participated in the survey, yielding an overall margin of sampling error at 95% confidence of +/- 2.4 percentage points. This survey was fielded in Australia, Belgium, Canada, India, Malaysia, UAE, Oman, Saudi Arabia, United Kingdom, and United States. Sampling error is larger for subgroups of the data. Prior year surveys had similar sample sizes and margins of error.

As with any survey, sampling error is only one source of possible error. While non-sampling error cannot be accurately calculated, precautionary steps were taken in all phases of the survey design, collection and processing of the data to minimize its influence. See the complementary CompTIA *International Trends in Technology and Workforce* study on the state of international business adoption of technology, trends, and workforce issues.

CompTIA is responsible for all content and analysis. Any questions regarding the study should be directed to CompTIA Research and Market Intelligence staff at research@comptia.org.

CompTIA is a member of the market research industry's Insights Association and adheres to its internationally respected Code of Standards and Ethics.

About CompTIA

The Computing Technology Industry Association (CompTIA) is a leading voice and advocate for the $5 trillion global information technology ecosystem; and the more than 50 million industry and tech professionals who design, implement, manage, and safeguard the technology that powers the world's economy.

Through education, training, certifications, advocacy, philanthropy, and market research, CompTIA is the hub for advancing the tech industry and its workforce.

Respondent Age

3%	13 years
4%	14 years
8%	15 years
17%	16 years
20%	17 years
47%	18 years

Respondent Gender

50%	Female
45%	Male
4%	Non-binary/third gender
1%	Prefer not to say

Country Sample Size

196	Australia
150	Belgium
150	Canada
200	India
145	Malaysia
130	Middle East (Oman, UAE, Saudi Arabia)
200	United Kingdom
500	United States

Appendix

Student Consideration for a Career in Technology

	Total	Australia	Belgium	Canada	India	Malaysia	Middle East*	United Kingdom	United States
Currently considering technology as a career option	25%	17%	15%	24%	44%	28%	36%	20%	22%
Had considered, but no longer	16%	12%	15%	14%	17%	14%	17%	19%	16%
May consider in the future	26%	28%	26%	20%	21%	26%	25%	31%	26%
No current or future consideration at this point	22%	30%	23%	28%	12%	17%	14%	23%	24%
Not sure	12%	13%	20%	14%	7%	14%	8%	8%	11%

*Middle East region includes responses from Oman, Saudi Arabia and United Arab Emirates

CompTIA

Source: CompTIA's *Student Perspectives of Technology and Careers* | n=1,671 students age 13-18

Student Interest in Specific Fields of Technology

	Total	Australia	Belgium	Canada	India	Malaysia	Middle East*	United Kingdom	United States
Video game developer/designer	29%	23%	19%	33%	24%	33%	30%	27%	35%
Applying technology to solve problems in healthcare, education, environment, etc.	28%	29%	19%	23%	32%	34%	21%	31%	28%
Software developer/Mobile app dev.	26%	19%	17%	27%	31%	33%	28%	26%	25%
Web developer/designer	25%	21%	15%	31%	24%	33%	29%	23%	26%
Working in emerging tech, e.g. AI, robotics, etc.	24%	20%	13%	28%	32%	27%	38%	21%	22%
Running my own technology business	18%	14%	17%	21%	19%	21%	22%	20%	17%
Cybersecurity	19%	15%	11%	19%	22%	28%	22%	17%	18%
Working to help others with technology, e.g. IT Support	20%	19%	10%	21%	22%	30%	24%	16%	19%
Data analyst, data scientist, database	19%	18%	9%	17%	24%	27%	21%	16%	20%
None of these	22%	29%	28%	27%	15%	18%	14%	22%	24%

*Middle East region includes responses from Oman, Saudi Arabia and United Arab Emirates

CompTIA

Source: CompTIA's *Student Perspectives of Technology and Careers* | n=1,671 students age 13-18

Incidence of Receiving Encouragement to Pursue a Career in Technology

	Total	Australia	Belgium	Canada	India	Malaysia	Middle East*	United Kingdom	United States
Yes	54%	52%	42%	51%	78%	61%	63%	57%	45%
No	32%	33%	44%	35%	15%	21%	23%	32%	38%
Not sure	14%	15%	14%	14%	8%	19%	14%	11%	16%

*Middle East region includes responses from Oman, Saudi Arabia and United Arab Emirates

CompTIA

Source: CompTIA's *Student Perspectives of Technology and Careers* | n=1,671 students age 13-18

Student Perceptions of Challenges to Pursuing a Career in Technology

	Total	Australia	Belgium	Canada	India	Malaysia	Middle East*	United Kingdom	United States
Cost / lack of affordable schooling / training options	37%	30%	18%	42%	38%	46%	40%	36%	39%
Lack of preparation / exposure to technology in high school or college	35%	34%	25%	32%	40%	47%	38%	30%	35%
Field of technology is too competitive / too difficult to enter	34%	29%	25%	35%	36%	42%	36%	30%	35%
Lack of mentors / guidance in how to pursue a career in technology	31%	29%	16%	30%	32%	40%	35%	30%	34%
Challenge of balancing schooling / training with work and life	31%	29%	23%	34%	30%	32%	36%	31%	32%
Limited job opportunities in technology in my local area	28%	31%	20%	27%	34%	27%	29%	30%	27%

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CompTIA

Source: CompTIA's *Student Perspectives of Technology and Careers* | n=1,671 students age 13-18

Specific Facets of Confidence Gap Discouraging Pursuit of a Career in Technology

	Total	Australia	Belgium	Canada	India	Malaysia	Middle East*	United Kingdom	United States
Fear of failure / starting something and not being able to finish it	43%	40%	27%	48%	37%	54%	49%	34%	49%
Concern over lacking certain skills, such as math or science	41%	45%	29%	47%	35%	48%	41%	32%	46%
Fear of starting too far behind others / not being able to catch up	38%	45%	26%	43%	37%	48%	41%	29%	39%
Fear of the unknown	35%	33%	31%	38%	28%	39%	34%	35%	38%
Concern over working in technology without a 4-year college degree	29%	25%	30%	33%	31%	21%	33%	26%	31%
Concern over the negative stereotypes of "tech culture"	29%	25%	25%	30%	31%	26%	30%	31%	30%

*Middle East region includes responses from Oman, Saudi Arabia and United Arab Emirates

CompTIA

Source: CompTIA's *Student Perspectives of Technology and Careers* | n=1,671 students age 13-18

Incidence of School's Offering Technology Classes

	Total	Australia	Belgium	Canada	India	Malaysia	Middle East*	United Kingdom	United States
Yes	70%	71%	67%	70%	73%	59%	80%	66%	71%
No	18%	18%	23%	17%	22%	22%	12%	22%	16%
Don't Know	12%	11%	11%	13%	6%	19%	9%	13%	13%
Requirement	39%	29%	54%	16%	67%	47%	63%	38%	27%
Elective	48%	65%	31%	69%	23%	44%	25%	45%	60%
Unsure	12%	6%	15%	15%	10%	9%	12%	17%	13%

*Middle East region includes responses from Oman, Saudi Arabia and United Arab Emirates

CompTIA

Source: CompTIA's *Student Perspectives of Technology and Careers* | n=1,671 students age 13-18

Student Opinion of Benefits of Taking Technology Classes

	Total	Australia	Belgium	Canada	India	Malaysia	Middle East*	United Kingdom	United States
Source of skills that will help me succeed in school	53%	50%	37%	49%	56%	65%	47%	57%	56%
Source of skills that will help me find a job in the future	47%	45%	34%	47%	44%	52%	55%	42%	50%
Starting point for a career in the tech field	47%	44%	29%	45%	52%	49%	54%	47%	48%
Source of skills for a vocational career	33%	36%	23%	33%	42%	38%	34%	30%	32%
Enhance college application to pursue a traditional degree program	32%	24%	28%	27%	28%	35%	38%	26%	38%
Pre-requisite for higher level technology classes	24%	20%	21%	25%	23%	20%	24%	16%	32%

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Student Opinions of College/University Degree

The post-secondary degree was presented as a traditional 4-yr Bachelor's degree or in countries where 3-yr is common, as a 3-yr college or university degree

	Total	Australia	Canada	India	Malaysia	Middle East*	United Kingdom	United States
3/4-year college/university degree is necessary	35%	30%	27%	58%	42%	45%	32%	26%
3/4-year college/university degree is nice to have, but may or may not be necessary	46%	48%	51%	23%	43%	43%	50%	52%
3/4-year college/university degree is not necessary	7%	10%	1%	13%	3%	4%	7%	9%
Yes, now more likely to think a 3/4-year college/university degree is nice to have	45%	41%	30%	61%	54%	56%	46%	38%
Yes, now more likely think a 3/4-year college/university degree is not necessary	16%	16%	15%	17%	14%	12%	17%	19%
No	23%	28%	29%	13%	14%	21%	21%	27%

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Appendix

Reasons for Shift in Perception on Traditional Degree

	Total	Australia	Canada	India	Malaysia	Middle East*	United Kingdom	United States
High cost of attending college	50%	47%	50%	42%	46%	50%	45%	57%
More opportunities to start my own business/earn a living on my own	43%	41%	47%	45%	39%	52%	38%	42%
More alternatives, such as certifications, to enter a career	41%	42%	39%	36%	45%	38%	36%	46%
Difficulty of completing degree that will lead to good career	33%	26%	31%	30%	41%	31%	27%	37%
More alternatives with non-traditional programs	29%	24%	28%	24%	23%	32%	31%	32%
Difficulty of getting into a good school	27%	19%	36%	22%	21%	25%	28%	30%

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Student Awareness and Concern Over Possible Job Displacement Due to Automating Technologies

Incidence of seeing/hearing reports	Total	Australia	Belgium	Canada	India	Malaysia	Middle East*	United Kingdom	United States
Yes	65%	63%	56%	64%	74%	73%	73%	56%	65%
No	22%	25%	29%	21%	16%	11%	12%	31%	22%
Not sure	13%	13%	15%	15%	10%	16%	16%	13%	12%

Level of concern	Total	Australia	Belgium	Canada	India	Malaysia	Middle East*	United Kingdom	United States
Very concerned	23%	16%	20%	20%	40%	26%	26%	23%	20%
Somewhat concerned	45%	48%	52%	44%	38%	44%	35%	45%	46%
Not that concerned	20%	21%	17%	21%	12%	12%	31%	20%	21%
Not sure	13%	15%	11%	15%	10%	17%	8%	13%	12%

*Middle East region includes responses from Oman, Saudi Arabia and United Arab Emirates

CompTIA

Source: CompTIA's *Student Perspectives of Technology and Careers* | n=1,671 students age 13-18

Student Opinions of Reliance on Technology

	Total	Australia	Belgium	Canada	India	Malaysia	Middle East*	United Kingdom	United States
Increase in usage and reliance	53%	45%	35%	56%	64%	59%	57%	59%	51%
Same as now	39%	48%	47%	39%	25%	38%	37%	37%	42%
Decrease in usage and reliance	8%	7%	18%	5%	11%	3%	6%	4%	7%

*Middle East region includes responses from Oman, Saudi Arabia and United Arab Emirates

CompTIA

Source: CompTIA's *Student Perspectives of Technology and Careers* | n=1,671 students age 13-18

Student Opinions of Where Technology is Headed

	Total	Australia	Belgium	Canada	India	Malaysia	Middle East*	United Kingdom	United States
Generally think technology is moving in a positive direction	57%	58%	46%	49%	62%	51%	64%	65%	56%
Neutral / unsure	32%	28%	38%	42%	30%	40%	25%	26%	33%
Generally think technology is moving in a negative direction	11%	14%	16%	9%	8%	9%	12%	9%	11%

*Middle East region includes responses from Oman, Saudi Arabia and United Arab Emirates

CompTIA

Source: CompTIA's *Student Perspectives of Technology and Careers* | n=1,671 students age 13-18

Student Opinion of Why Technology is Moving in a Positive Direction

	Total	Australia	Belgium	Canada	India	Malaysia	Middle East*	United Kingdom	United States
Apps and devices that get faster, better, and with more features	59%	58%	43%	53%	53%	68%	56%	61%	67%
More opportunities for creative expression	52%	48%	33%	58%	52%	50%	60%	49%	55%
Innovation / the next big breakthrough could drastically improve lives	52%	56%	33%	52%	48%	55%	55%	51%	58%
More choices/something to meet the needs of just about everyone	50%	44%	29%	56%	44%	54%	48%	52%	58%
Narrowing digital divide / expanding access to information, services, etc.	34%	29%	29%	39%	27%	38%	39%	26%	39%
Free or "freemium" access to many apps and services	31%	28%	28%	28%	26%	36%	32%	30%	35%

*Middle East region includes responses from Oman, Saudi Arabia and United Arab Emirates

CompTIA

Source: CompTIA's *Student Perspectives of Technology and Careers* | n=1,671 students age 13-18

Student Opinion of Why Technology is Moving in a Negative Direction

	Total	Australia	Belgium	Canada	India	Malaysia	Middle East*	United Kingdom	United States
Lack of privacy / control over personal data	62%	71%	50%	67%	52%	62%	61%	60%	67%
Growing cybersecurity risks	54%	55%	32%	57%	55%	61%	57%	51%	59%
Lack of civility online / cyberbullying	50%	50%	45%	55%	36%	60%	38%	46%	56%
Apps and devices becoming too much of a distraction / too addictive	50%	49%	39%	55%	43%	52%	56%	48%	53%
Too much advertising / commercialization	43%	42%	50%	42%	32%	50%	44%	34%	46%
Growing digital divide / some have access to technology and some do not	26%	27%	20%	29%	23%	28%	23%	22%	30%

*Middle East region includes responses from Oman, Saudi Arabia and United Arab Emirates

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